APPENDIX A: Mud Additive Summary for Recent Newberry Well Drilling Operations and Material Safety Data Sheets (MSDS) for additives

Mud and additives provided by Boart Longyear.

Table 1: Mud additives and volumes used during the drilling of well Newberry 46-16.

Product	Total lbs or gallons
Gel	318,400
Barite	37,500
Lime	1,500
Ben-Ex	112
Polythin	10 gal
Desco	1,075
C'Seed Pellets	5,720
Sawdust	10,700
CaCo3	4,900
Prime-Seal	6,000
Defoamer	540 gal
Poly-Vis	965
Mag Fiber	805
Pac	850
Micro-C	3,925
Torkease	795 gal
Bicarb	3,000
Soda Ash	1,200
Citric Acid	100
Caustic Soda	4,550
Nutplug	7,850
Thermo Lig	1,000
HT Thin	2,050
Amber Guard	30 gal
Polyplus RD	3,700
XCD Polymer	3,275
Mud Detergent	160
Amber 1200 D	2,750

Table 2: Mud additive report for Newberry well 55-29. Mud and additives provided by Boart Longyear.

Product	Total lbs or gallons
Gel	852,500
Barite	45,500
Lime	5,000
Ben-Ex	108
Polythin	55 gal
Desco	1,150
C'Seed Pellets	20,840
Sawdust	20,750
CaCo3	6,300
Prime-Seal	25,960
TBP-EX	455 gal
Poly-Vis	910 gal
Mag Fiber	8,120
Pac	10,150
Mica	1,350
Micro-C	12,325
Torkease	1,385
Bicarb	4,350
Soda Ash	1,600
Citric Acid	100
KOH	1,000
Caustic Soda	3,500
Nutplug	2,950
HT Thin	450
Defoam 14	70

*AltaRock has a portfolio of patent filings protecting its proprietary technology and methods.

REVISION DATE: 13-Dec-04

SAFETY DATA SHEET

BARITE

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

PRODUCT NAME	BARITE
APPLICATION	Weighting agent.
SUPPLIER	M-I Drilling Fluids UK Ltd, Pocra Quay, Footdee, Aberdeen. AB11 5DQ T -44 (0)1224-584336 F -44 (0)1224-576119
EMERGENCY TELEPHONE	001 281 561 1600 (USA)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
BARIUM SULPHATE	231-784-4	7727-43-7	60-100%	-
QUARTZ, CRYSTALLINE SILICA	238-876-4	14808-60-7	5-10%	Xn;R20.

The Full Text for all R-Phrases are Displayed in Section 16

GROSS FORMULA Barite, a naturally occurring mineral.

CAS-NO. 13462-86-7

COMPOSITION COMMENTS

Prolonged and repeated exposure to concentrations of crystalline silica exceeding the maximum exposure limit may lead to chronic lung disease such as silicosis.

3 HAZARDS IDENTIFICATION

Not regarded as a health or environmental hazard under current legislation.

HUMAN HEALTH

This product contains a small quantity of quartz. IARC Monographs, Vol.68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or crystobalite from occupational sources causes cancer in humans. IARC classification Group 1.

4 FIRST-AID MEASURES

INHALATION

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

INGESTION

First aid is not normally required. Rinse mouth thoroughly. Drink plenty of water.

SKIN CONTACT

Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYE CONTACT

Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention if any discomfort continues.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

SPECIAL FIRE FIGHTING PROCEDURES

No specific fire fighting procedure given.

UNUSUAL FIRE & EXPLOSION HAZARDS

No unusual fire or explosion hazards noted.

SPECIFIC HAZARDS

Not relevant.

REVISION DATE: 13-Dec-04

BARITE

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Wear protective clothing as described in Section 8 of this safety data sheet.

ENVIRONMENTAL PRECAUTIONS

Do not allow to enter drains, sewers or watercourses.

SPILL CLEAN UP METHODS

Shovel into dry containers. Cover and move the containers. Flush the area with water. May be slippery when wet.

7 HANDLING AND STORAGE

USAGE PRECAUTIONS

Avoid handling which leads to dust formation. Provide good ventilation. Mechanical ventilation or local exhaust ventilation may be required. Do not use contact lenses.

STORAGE PRECAUTIONS

Store at moderate temperatures in dry, well ventilated area. Keep containers tightly closed.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	Std	LT - ppm	LT - mg/m3	ST - ppm	ST - mg/m3
QUARTZ, CRYSTALLINE SILICA	MEL		0.3 mg/m3		
BARIUM SULPHATE	OES		4 mg/m3 resp. dust		

INGREDIENT COMMENTS

MEL = Maximum Exposure Limit. * OSHA PELs for Mineral Dusts containing crystalline silica are 10 mg/m3 / (%SiO2+2) for quartz and 1/2 the calculated quartz value for cristobalite and tridymite. NUI = Nuisance Dust. OES TWA 4mg/m3 respirable dust, 10mg/m3 total dust. OES = Occupational Exposure Standard.

PROTECTIVE EQUIPMENT

ENGINEERING MEASURES

Provide adequate general and local exhaust ventilation.

RESPIRATORY EQUIPMENT

Respiratory protection must be used if air contamination exceeds acceptable level. Dust filter P3 (for especially fine dust/powder).

HAND PROTECTION

No specific hand protection noted, but gloves may still be advisable. For prolonged or repeated skin contact use suitable protective gloves. Rubber or plastic.

EYE PROTECTION

Wear dust resistant safety goggles where there is danger of eye contact.

OTHER PROTECTION

Wear appropriate clothing to prevent repeated or prolonged skin contact. Provide eyewash station.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Powder, dust		
COLOUR	Tan to Grey		
ODOUR	Odourless or No characteristic odour.		
SOLUBILITY	Insoluble in water		
MELTING POINT (°C)	1580	RELATIVE DENSITY	4.2 - 4.25 20
BULK DENSITY	varies 1920 - 2400 kg/m3		

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions.

CONDITIONS TO AVOID

Avoid wet and humid conditions.

REVISION DATE: 13-Dec-04

BARITE

MATERIALS TO AVOID

No incompatible groups noted.

HAZARDOUS DECOMPOSITION PRODUCTS

No specific hazardous decomposition products noted.

11 TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION

Acute toxicity. LD50. Oral. Rat. > 20000 mg/kg

INHALATION

Dust may irritate respiratory system or lungs. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

INGESTION

May cause discomfort if swallowed.

SKIN CONTACT

Powder may irritate skin.

EYE CONTACT

Particles in the eyes may cause irritation and smarting.

HEALTH WARNINGS

Prolonged and repeated exposure to concentrations of crystalline silica exceeding the maximum exposure limit may lead to chronic lung disease such as silicosis.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

Not regarded as dangerous for the environment. This material is a naturally occurring mineral. OSPAR have defined this chemical as PLONOR

.

13 DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Recover and reclaim or recycle, if practical. Dispose of on site landfill area. Dispose of waste and residues in accordance with local authority requirements.

14 TRANSPORT INFORMATION

GENERAL	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

15 REGULATORY INFORMATION

RISK PHRASES

NC	Not classified.

SAFETY PHRASES

NC	Not classified.

UK REGULATORY REFERENCES

Approved Supply List

STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations.

APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations.

GUIDANCE NOTES

Classification and Labelling of Substances and Preparations Dangerous for Supply. IARC Monographs, Vol.68, 1997.

16 OTHER INFORMATION

GENERAL INFORMATION

NPCA HMIS HAZARD INDEX: 0 [Minimal Hazard]

NPCA HMIS HAZARD INDEX: 1 [Slight Hazard]

HMIS Health - 1 HMIS Flammability - 0 HMIS Physical Hazard - 0 E - Safety glasses, Gloves, Dust Respirator

INFORMATION SOURCES

Material Safety Data Sheet, Misc. manufacturers.

REVISION COMMENTS

Revised by Silvia Smart. The following sections have been revised: 2, 6, 7, 8, 12, 15, 16.

REVISION DATE: 13-Dec-04

BARITE

ISSUED BY
Sam Hoskin
REVISION DATE 13-Dec-04
REV. NO./REPL. SDS GENERATED 2

RISK PHRASES IN FULL
R20 Harmful by inhalation.

DISCLAIMER

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

AMBER CHEMICAL INCORPORATED

5201 BOYLAN STREET
BAKERSFIELD, CA 93308
OFFICE PHONE: (661) 325-2072
OFFICE FAX: (661) 325-2285

FACSIMILE TRANSMITTAL SHEET

TO: JOHN TUTTLE

FROM: SHAWN PARTAIN

COMPANY: SINCLAIR WELL

DATE: 10/14/04

FAX NUMBER: 603 584-6058

TOTAL PAGES INCLUDING COVER PAGE: 3

PHONE NUMBER:

AMBER'S PHONE NUMBER: (661) 325-2072

RE: CSH PELLET MSDS

CC:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ FOR IMMEDIATE RESPONSE

NOTES/COMMENTS:

WARNING/CONFIDENTAIL: THIS MESSAGE IS INTENDED ONLY FOR USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING THE MESSAGE TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE AND RETURN THE ORIGINAL MESSAGE TO US AT THE ADDRESS ABOVE VIA THE US POSTAL SERVICE...THANK YOU

OSHA Material Safety Data Sheet

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)
Cottonseed Hull Pellets

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name
Producers Cotton Oil Co.

Address (Number, Street, City, State, and ZIP Code)
P.O. Box 1832
Fresno, CA 93717

Emergency Telephone Number
(209) 487-7920

Telephone Number for Information
(209) 487-7915

Date Prepared
August 14, 2000

Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
N/A				
	(15 mg/m³ total)*			
	(5 mg/m³ respexable)*			

*This is the OSHA PEL for "particulates not otherwise regulated" as found in Table 21 of 29 CFR 1910.1000.

Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	1.2-1.6
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water
insoluble

Appearance and Odor
white fibers (amorphous solid), lignin seed hull

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N/A	N/A	55gm/m³	unknown

Extinguishing Media
Use water, carbon dioxide, foam or dry chemical.

Special Fire Fighting Procedures
Do not use direct hose stream if dust can be dispersed into air.

Dust dispersed by water stream in the presence of an ignition source could cause an explosion.

Unusual Fire and Explosion Hazards
If improperly handled, stored and/or exposed to an ignition source, this mat may burn. Airborne dust in sufficient concentrations, when confined and exp to a sufficient ignition source, can explode.

Stability	Unstable		Conditions to Avoid N/A
	Stable	X	

Incompatibility (Materials to Avoid)
N/A

Hazardous Decomposition or Byproducts
Carbon Monoxide formed on combustion as in all combustion.

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? Yes Skin? No Ingestion? No

Health Hazards (Acute and Chronic)
Excessive inhalation may affect the respiratory system. Smokers have an increased risk to respiratory effects. Contact may cause irritation to eye

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Signs and Symptoms of Exposure
Some persons may occasionally experience airway irritation and coughing.

Medical Conditions Generally Aggravated by Exposure
Allergies and respiratory ailments.

Emergency and First Aid Procedures
Remove from exposure. Seek medical attention if neede
Flush eyes with water.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken In Case Material is Released or Spilled
Normal housekeeping adequate. Respiratory protection recommended where levels cannot be controlled below PEL.

Waste Disposal Method
No restrictions - dispose with other general plant non-toxic solid waste.

Precautions to Be Taken In Handling and Storing
Maintain dry storage, avoid dispersion in air, and avoid exposure to to potential ignition sources.

Other Precautions
N/A

Section VIII — Control Measures

Respiratory Protection (Specify Type)
Air purifying dust respirators approved by NIOSH or MSHA where needed.

Ventilation	Local Exhaust	Where needed.	Special	N/A
	Mechanical (General)	Where needed.	Other	N/A

Protective Gloves N/A

Eye Protection Goggles if needed.

Other Protective Clothing or Equipment
N/A

Work/Hygienic Practices
Remove from skin by washing with soap and water.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHROME FREE DESCO ® II DEFLOCCULANT

Product Use: Drilling Mud Additive
Product Number(s): 0001068748, 0001036678
Synonyms: DRILLING MUD DEFLOCCULANT
Product Cas No.: MIXTURE

Company Identification:
Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001Six Pines Drive
The WoodlandsTX 77380

Product Information:
MSDS Requests: (800) 852-5530
Technical Information: (800) 221-1956

24-Hour Emergency Telephone Numbers
HEALTH: Chevron Phillips Emergency Information Center 866.442.9628 (North America) and 1.832.813.4984(International)
TRANSPORTATION: North America: CHEMTREC 800.424.9300 or 703.527.3887
ASIA: 1.703.527.3887
EUROPE: BIG .32.14.584545 (phone)
or .32.14.583516 (telefax)
SOUTH AMERICA SOS-Cotec
Inside Brazil: 0800.111.767
Outside Brazil: 55.19.3467.1600

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	AMOUNT	EINECS	SYN	R-PHRASES
PROPRIETARY MATERIALS	PROPRIETARY	90 % weight	NA	NA	NA
FERROUS SULFATE	17375-41-6	< 10 % weight	NA	NA	NA
CRYSTALLINE SILICA	14808-60-7	< 1 % weight	238-878-4	Xn	R48, R40

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation

CRYSTALLINE SILICA	ACGIH	.05 mg/m3	NA	NA	NA
CRYSTALLINE SILICA	CPCHEM	.05 mg/m3	NA	NA	Respirable Dust
CRYSTALLINE SILICA	German MAK	.15 mg/m3	NA	NA	NA
FERROUS SULFATE	ACGIH	1 mg/m3	NA	NA	NA
FERROUS SULFATE	OSHA Z1A	1 mg/m3	NA	NA	NA
PROPRIETARY MATERIALS	CPCHEM	Not Established	NA	NA	NA

SECTION 3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

Fine reddish-brown powder with small white specks, odorless.

- MAY CAUSE RESPIRATORY TRACT IRRITATION IF INHALED
- MAY CAUSE SKIN IRRITATION
- DUST MAY PRODUCE MECHANICAL IRRITATION TO THE MUCOUS MEMBRANES OF THE EYES, NOSE, THROAT AND UPPER RESPIRATORY TRACT
- MAY CAUSE EYE IRRITATION
- SUSPECT CANCER HAZARD - MAY CAUSE CANCER
- MAY CAUSE DAMAGE TO:
- - - - - - LUNGS
- - - - - - LIVER
- - - - - - BLOOD/BLOOD FORMING ORGANS
- - - - - - GASTROINTESTINAL SYSTEM

****

IMMEDIATE HEALTH EFFECTS:

Eye: This material may be slightly irritating to the eyes and could cause prolonged (days) impairment of your vision. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Material is dusty and may scratch the surface of the eye. The eye irritation hazard is based on data for a similar material.

Skin: This material may be slightly irritating to the skin. The degree of the injury will depend on the amount of material that gets onto the skin and the speed and thoroughness of the first aid treatment. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed. May be irritating to mouth, throat, and stomach. Symptoms may include nausea, vomiting, and diarrhea.

Inhalation: The dust from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty in breathing.

DELAYED OR OTHER HEALTH EFFECTS:

Cancer: Prolonged or repeated exposure to this material may cause cancer.

Target Organs: Gastrointestinal System - Blood/Blood Forming Organs - Liver - Lung

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with running water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

Skin: To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse. Get medical attention if any symptoms develop.

Ingestion: If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get

immediate medical attention. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

SECTION 5 FIRE FIGHTING MEASURES

NFPA RATINGS: **Health:** 2 **Flammability:** 0 **Reactivity:** 0
FLAMMABLE PROPERTIES:
Flashpoint: NA
Autoignition: NDA
Flammability (Explosive) Limits (% by volume in air): **Lower:** NA **Upper:** NA

EXTINGUISHING MEDIA: Use water fog, "alcohol foam", dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH self-contained breathing apparatus (SCBA) and other protective equipment and/or garments as described in Section 8 if exposure conditions warrant.
Combustion Products: Combustion may form: Sulfur Oxides, Carbon Oxides, Iron Oxides

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill Management: Avoid creating dust clouds. Shovel, sweep up or use industrial vacuum cleaner to pick up. Place in container for proper disposal. Reduce airborne dust and prevent scattering by moistening with water.

SECTION 7 HANDLING AND STORAGE

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL . REFER TO PRODUCT LABEL OR MANUFACTURERS TECHNICAL BULLETINS FOR THE PROPER USE AND HANDLING OF THIS MATERIAL .

Precautionary Measures: Use caution to avoid creation of dusts and to prevent inhalation of product dust (fines). Avoid contact with product dust. Airborne dust concentrations above 20 mg/l may create a dust explosion hazard. Avoid breathing vapors or fumes which may be released during thermal processing. Do not breathe dust at levels above the recommended exposure limits. Avoid breathing material. Keep container closed. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Discard contaminated clothing and shoes or thoroughly clean before resuse. Do not breathe dust.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations, which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids, National Fire Protection Association (NFPA 77), Recommended Practice on Static Electricity' (liquids, powders and dusts), and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents' (liquids).
General Storage Information: Treat as a solid that can burn. Store away from oxidizing materials, in a cool, dry place with adequate ventilation. Bond and ground transfer equipment. DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA.

Keep container closed when not in use.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly. Containers, even those that have been emptied, can contain residues of dusts or solid particulates which may create both health and fire/explosion hazards.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
If heated material generates vapor or fumes, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

PERSONAL PROTECTIVE EQUIPMENT:
Eye/Face Protection: No special eye protection is normally required. If operating conditions create dust that is not adequately controlled, wear appropriate goggles. Wear eye protection such as safety glasses, chemical goggles, or faceshields if engineering controls or work practices are not adequate to prevent eye contact.
Skin Protection: Wear impervious protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Users should determine acceptable performance characteristics of protective clothing. Consider physical requirements and other substances present when selecting protective clothing. Suggested materials for protective gloves include: Neoprene
Respiratory Protection: If user operations generate harmful levels of airborne material that is not adequately controlled by ventilation, wear a NIOSH approved respirator that provides adequate protection. Use the following elements for air-purifying respirators: Air-Purifying Respirator for Particulates (HEPA)

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation
CRYSTALLINE SILICA	ACGIH	.05 mg/m3	NA	NA	NA
CRYSTALLINE SILICA	CPCHEM	.05 mg/m3	NA	NA	Respirable Dust
CRYSTALLINE SILICA	German MAK	.15 mg/m3	NA	NA	NA
FERROUS SULFATE	ACGIH	1 mg/m3	NA	NA	NA
FERROUS SULFATE	OSHA Z1A	1 mg/m3	NA	NA	NA
PROPRIETARY MATERIALS	CPCHEM	Not Established	NA	NA	NA

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Fine reddish-brown powder with small white specks, odorless.
pH: NA

VAPOR PRESSURE: NA
VAPOR DENSITY (AIR=1): NA
BOILING POINT: NA
SOLUBILITY (in water) : Appreciable
SPECIFIC GRAVITY: 1.5 - 1.7

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Conditions to Avoid: No Data Available
Incompatibility With Other Materials: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: Sulfur and carbon oxides formed when burned.
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS:

Acute Oral Toxicity: The oral LD50 is not known.
Acute Dermal Toxicity: The dermal LD50 is not known.
Acute Inhalation Toxicity: The inhalation LC50 is not known.

Eye Irritation: The eye irritation hazard is based on data for a similar material. May cause eye irritation.
Skin Irritation: May cause skin irritation. The skin irritation hazard is based on data for a similar material.
Respiratory Tract Irritation: This material is a mild irritant to the respiratory tract.

ADDITIONAL TOXICOLOGY INFORMATION:

Long-term exposure to high dust concentrations may cause non-debilitating lung changes.

The toxicological properties of this product have not been tested or have not been tested completely and its handling or use may be hazardous. EXERCISE DUE CARE.

This material contains IRON DUSTS.
Target organs: lung (siderosis), liver (periportal necrosis), gastrointestinal tract (hemorrhagic necrosis), blood (decrease coagulation)

This product contains CRYSTALLINE SILICA.
Repeated inhalation of the dust may cause insidious lung injury and possibly silicosis. In patients with silicosis, areas of the lung become filled with scar tissue. The signs and symptoms may include cough, shortness of breath, difficulty in breathing, and loss of weight. The disease can progressively worsen and result in death. The International Agency for Research on Cancer (IARC) classified crystalline silica as a human carcinogen.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY:
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material

should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE:
The environmental fate of this material is not available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

Shipping Descriptions per regulatory authority.

US DOT
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Ferrous Sulfate), 9, UN3077, III

ICAO / IATA
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Ferrous Sulfate), 9, UN3077, III

IMO / IMDG
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Ferrous Sulfate), 9, UN3077, III

RID / ADR
UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Ferrous Sulfate), 9, III, ADR

SECTION 15 REGULATORY INFORMATION

SARA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01= CA Prop 65	16 = FDA 177	31 = OSHA Carcinogen
02 = LA RTK	17 = FDA 178	32 = OSHA Highly Hazardous
03 = MA RTK	18 = FDA 179	33 = RCRA Waste Appendix VIII

04 =MN Hazardous Substance	19 = FDA 180	34 = RCRA Waste D-List
05 =NJ RTK	20 = FDA 181	35 = RCRA Waste P-List
06 = PA RTK	21 = FDA 182	36 = RCRA Waste U-List
07 = CAA Section 112 HAPs	22 = FDA 184	37 = SARA Section 311/312
08 = CWA Section 307	23 = FDA 186	38 = SARA Section 313
09 = CWA Section 311	24 = FDA 189	39 = TSCA 12 (b)
10 =DOT Marine Pollutant	25 = IARC Group 1	40 = TSCA Section 4
11 = FDA 172	26 = IARC Group 2A	41 = TSCA Section 5(a)
12 = FDA 173	27 = IARC Group 2B	42 = TSCA Section 8(a) CAIR
13 = FDA 174	28 = IARC Group 3	43 = TSCA Section 8(a) PAIR
14 = FDA 175	29 = IARC Group 4	44 = TSCA Section 8(d)
15 = FDA 176	30 = NTP Carcinogen	45 = WHIMS - IDL

The following components of this material are found on the regulatory lists indicated.

FERROUS SULFATE	3, 4, 5, 6, 9, 45
CRYSTALLINE SILICA	1, 3, 4, 5, 6, 25, 30, 45

CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
FERROUS SULFATE	1000 lbs	None	11111.11 lbs

WHMIS CLASSIFICATION:
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material

CHEMICAL INVENTORY LISTINGS:
AUSTRALIA: This material contains components that require notification before sale or importation into Australia.
CANADA: This material contains components that are neither on the Domestic Substance List (DSL) nor on the Non-domestic Substances List (NDSL).
JAPAN: This material contains components that require notification before sale or importation into Japan.
UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.
KOREA: This material contains components that require notification before sale or importation into Korea.
PEOPLE'S REPUBLIC OF CHINA: This material contains components that require notification before sale or importation into China.

EU RISK AND SAFETY PHRASES:
R45: May cause cancer.
S22: Do not breathe dust.
S53: Avoid exposure - obtain special instructions before use.

EU Symbols: NA

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 0 Reactivity: 0 Special: NA

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA).

REVISION STATEMENT: This revision updates all sections of the MSDS please review.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV	-	Threshold Limit Value	TWA	-	Time Weighted Average
STEL	-	Short-term Exposure Limit	PEL	-	Permissible Exposure Limit
ACGIH	-	American Conference of Government Industrial Hygienists	OSHA	-	Occupational Safety & Health
NIOSH	-	National Institute of Safety & Health	NFPA	-	National Fire Protection Agency
WHMIS	-	Workplace Hazardous Materials Information System	IRAC	-	Intl. Agency for Research on Cancer
EINECS	-	European Inventory of existing Commercial Chemical Sales	RCRA	-	Resource Conservation Recovery Act
SARA	-	Superfund Amendments and Reauthorization Act.	TSCA	-	Toxic Substance Control Act
EC50	-	Effective Dose	LC50	-	Lethal Concentration
LD50	-	Lethal Dose	CAS	-	Chemical Abstract Service Number
NDA	-	No Data Available	NA	-	Not Applicable
<=	-	Less Than or Equal To	>=	-	Greater Than or Equal To
CNS	-	Central Nervous System	MAK	-	Germany Maximum Concentration Values

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by EHS Product Stewardship Group, Chevron Phillips Chemical Company LP, 10001 Six Pines Drive, The Woodlands, TX 77380

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

NEWMAN PUBLICATIONS, LONG BEACH, CA 349646-CV

SINCLAIR
WELL PRODUCTS AND SERVICES

Bill of Lading
~~SALES ORDER~~

SALES ORDER NUMBER
614891

CORPORATE OFFICE:
CERRITOS, CA
10637 Midway Ave.
Cerritos, CA 90703
(800) 782-3222
FAX (562) 403-3564

VENTURA, CA
1723 N. Ventura Ave.
Ventura, CA 93001
(805) 653-7975
FAX (805) 653-7452

SAN DIEGO, CA
7675 Formula Place #A
San Diego, CA 92121
(858) 566-4603
FAX (858) 566-4604

FONTANA, CA
16040 Valley Blvd.
Fontana, California 92335
(909) 357-9111
FAX: (909) 357-9311

IRVINE, CA
17692 Cowan, Suite 200
Irvine, CA 92614
(800) 829-1025
FAX (949) 474-3016

SOLD TO
Pool

SHIP TO
Pool
Carpenteria Pier
Platform Hagen

CREDIT
WRITTEN BY
DATE 2/26/05

SHIP VIA	CUST. NO.	PPD F O B DLVD	PPD ADD FRT	FRT COLL	EXEMPT	TAXABLE	TERMS:	SHIP ON	TO ARRIVE
SWP		☐	☐	☐	☐	☐		2/26/05	8AM
PURCHASE ORDER NUMBER	**REQUISITION NUMBER**	**B/O'D FROM**		**B/O DATE**				**SALESMAN**	**DEPT.**
								JT	

QUANTITY ORDERED	QUANTITY SHIPPED	DESCRIPTION	PRICE	AMOUNT	DO NOT WRITE IN THIS SPACE
60		Quinquell 50#			
36		Tork ease Spot Buckets			
14		Drispace 50#			
20		Aqua Mec 50# Reg.			
8		Defoam-X			
9		Mis pallet			
5		Shrink wrap			
1		Del SWP			

THIS IS NOT AN INVOICE

RECEIVED BY Robert Vasquez
DATE

TITLE OF GOODS PASSES TO CUSTOMER AT WAREHOUSE PRIOR TO SHIPMENT

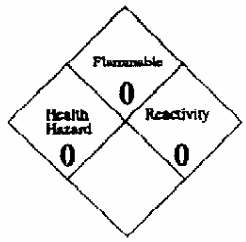
DELIVERED BY
DATE 2/26/05

PALLET RETURN
RMC
Sir-Mix
Western States

POSTING COPY
SALESMAN'S COPY
SHIPPING COPY

WYO-BEN, INC.

MATERIAL SAFETY DATA SHEET



NFPA FIRE HAZARD IDENTIFICATION SYSTEM

I. PRODUCT IDENTIFICATION

Trade Name(s): HYDROGEL®

Generic Name(s): Wyoming (Western) Bentonite; Bentonite Clay (CAS No. 1302-78-9)

Chemical Name(s): Sodium Montmorillonite (CAS No. 1318-93-0)

Manufacturer: WYO-BEN, INC.
Address: P.O. Box 1979
Billings, Montana 59103

Telephone Numbers:
Information: (406) 652-6351
EMERGENCY: (406) 652-6351

II. HAZARDOUS INGREDIENTS

Ingredient	CAS NO.	%	Hazard
Crystalline Silica (SiO_2) as Quartz	14808-60-7	See Note	Low concentrations of crystalline silica (SiO_2) in the form of quartz, may be present in airborne bentonite dust. See Section VI for discussion of health hazard.

Note: Although the typical quartz content of western bentonite is in the range of 2 to 6% most of the quartz particles are larger than the 10 μ respirable threshold size. The actual respirable quartz concentration in airborne bentonite dust will depend upon bentonite source, fineness of product, moisture content of product, local humidity and wind condition at point of use and other use specific factors.

III. PHYSICAL DATA

Boiling Point (°F): NA

Specific Gravity (H_2O=1): 2.45-2.55

Vapor Pressure (mm. Hg): NA

Melting Point: Approx. 1450°C

Vapor Density (Air = 1): NA

Evaporation Rate (Butyl Acetate = 1): NA

Solubility in Water: Insoluble, forms colloidal suspension.

pH: 8-10 (5% aqueous suspension)

Density (at 20° C): 55 lbs/cu.ft. as product.

Appearance and Odor: Bluegray to green as moist solid, light tan to gray as dry powder. No odor.

IV. FIRE AND EXPLOSION DATA

Flash Point: NA

Flammable Limits: LEL: NA UEL: NA

Special Fire Fighting Procedures: NA

Unusual Fire and Explosion Hazards: None. Product will not support combustion.

Extinguishing Media: None for product. Any media can be used for the packaging. Product becomes slippery when wet.

Stability: Stable

Hazardous Polymerization: None

Incompatibility: None

Hazardous Decomposition Products: None

NA = Not Applicable ND = Not Determined

Date Prepared: June 14, 1996

Doc #: 10100-01

Routes of Exposure and Effects:

Skin: Possible drying resulting in dermatitis.

Eyes: Mechanical irritant.

Inhalation: Acute (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough.

Chronic (long term) exposure to airborne bentonite dust containing respirable size ($\leq 10\ \mu$) quartz particles, where respirable quartz particle levels are higher than TLV's, may lead to development of silicosis or other respiratory problems. Persistent dry cough and labored breathing upon exertion maybe are symptomatic.

Ingestion: No adverse effects.

Permissible Exposure Limits: (for air contaminants)	OSHA PEL (8hr. TWA)	ACGIH TLV
Bentonite as "Particulates not otherwise regulated" (formerly nuisance dust)		
Total dust	15mg/m^3	ND
Respirable dust	5mg/m^3	ND
Crystalline Quartz (respirable)	0.1mg/m^3	0.1mg/m^3

Carcinogenicity: Bentonite is not listed by NTP, IARC or OSHA. IARC, 1987, concludes that there is limited evidence suggesting the carcinogenicity in humans of inhaled crystalline silica (IARC Class 2A).

Acute Oral LD_{50}: ND	Acute Dermal LD_{50}: ND	Aquatic Toxicology LC_{50}: ND

Emergency and First Aid Procedures:

Skin: Wash with soap and water until clean.

Eyes: Flush with water until irritation ceases.

Inhalation: Move to area free from dust. If symptoms of irritation persist contact physician. Inhalation may aggravate existing respiratory illness.

VI. HANDLING AND USE PRECAUTIONS

Steps to be Taken if Material is Released or Spilled: Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

Waste Disposal Methods: Product should be disposed of in accordance with applicable local, state and federal regulations.

Handling and Storage Precautions: Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne bentonite dust levels exceed PEL/TLV's. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

VII. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements: Mechanical, general room ventilation. Use local ventilation to maintain PEL's/TLV's.

Respirator: Use respirators approved by NIOSH/MSHA for silica bearing dust.

Eye Protection: Generally not necessary. Personal preference.

Gloves: Generally not necessary. Personal preference.

Other Protective Clothing or Equipment: None

VIII. SPECIAL PROTECTION

Avoid prolonged inhalation of airborne dust.

IX. TRANSPORTATION

Shipping Name: NA (Not Regulated)	Hazard Class: NA
Hazardous Substance: NA	Caution Labeling: NA

Date Prepared: June 14, 1996

Doc #: 10100-01

All information presented herein is believed to be accurate, however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.

MATERIAL SAFETY DATA SHEET
LIME

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: LIME

APPLICATIONS: Oil well drilling fluid additive. Calcium source.

EMERGENCY TELEPHONE: 281-561-1600

SUPPLIER: Supplied by a Business Unit of
M-I L.L.C.
P.O. Box 42842, Houston, Texas 77242-2842
See cover sheet for local supplier.

TELEPHONE: 281-561-1509
FAX: 281-561-7240

CONTACT PERSON: Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Calcium hydroxide	1305-62-0	100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an white powder. Slippery when wet. Dike and contain spills. Keep out of sewers and waterways. No significant immediate hazards for emergency response personnel are known.

ACUTE EFFECTS:
HEALTH HAZARDS, GENERAL:

Particulates may cause mechanical irritation to the eyes, nose, throat and lungs. Particulate inhalation may lead to pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma. Dermatitis and asthma may result from short contact periods.

INHALATION: Irritating to the respiratory tract if inhaled.

INGESTION: Harmful if swallowed. May cause gastric distress, nausea and vomiting if ingested.

SKIN: Severely irritating to the skin.

EYES: Severely irritating to the eyes. May cause severe eye injury.

CHRONIC EFFECTS:
CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:
Inhalation. Skin and/or eye contact.

TARGET ORGANS:
Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL: Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION: Drink a couple of glasses water or milk. Do not give victim anything to drink of he is unconscious. Get medical attention.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

AUTO IGNITION TEMP. (°F): N/D
FLAMMABILITY LIMIT - LOWER(%): N/D
FLAMMABILITY LIMIT - UPPER(%): N/A

EXTINGUISHING MEDIA:
Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist. Use extinguishing media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES:
No specific fire fighting procedure given. Normal fire fighting techniques may be used.

UNUSUAL FIRE & EXPLOSION HAZARDS:
Not flammable. No unusual fire or explosion hazards noted.

HAZARDOUS COMBUSTION PRODUCTS:
No specific hazardous combustion products noted. This material is not combustible.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:
Avoid generating and spreading of dust. Shovel into dry containers. Cover and move the containers. Flush the area with water. Do not contaminate drainage or waterways. Repackage or recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:
Avoid handling causing generation of dust. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed. Provide good ventilation. Mechanical ventilation or local exhaust ventilation is required.

STORAGE PRECAUTIONS:
Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

		OSHA PEL:		ACGIH TLV:		OTHER:		
INGREDIENT NAME:	**CAS No.:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**UNITS:**
Calcium hydroxide	1305-62-0	15		5				mg/m3 total dust

PROTECTIVE EQUIPMENT:

ENGINEERING CONTROLS:
Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: Use at least a NIOSH-approved N95 half-mask disposable or reuseable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.

PROTECTIVE GLOVES:
Use suitable protective gloves if risk of skin contact.

EYE PROTECTION:
Wear dust resistant safety goggles where there is danger of eye contact.

PROTECTIVE CLOTHING:
Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:
Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:	Powder, dust.	
COLOR:	White.	
ODOR:	Odorless or no characteristic odor.	
SOLUBILITY DESCRIPTION:	Slightly soluble in water.	
DENSITY/SPECIFIC GRAVITY (g/ml):	2.08 - - 2.34	TEMPERATURE (°F): 68
VAPOR DENSITY (air=1):	N/A	
VAPOR PRESSURE:	N/A	TEMPERATURE (°F):
pH-VALUE, DILUTED SOLUTION:	12.4	CONCENTRATION (%,M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Avoid heat.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong acids. Maleic anhydride, nitroethane, nitromethane, nitroparaffins, nitropropane, phosphorus.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

Component: **Calcium hydroxide**

TOXICOLOGICAL DATA:

Corrosive effects.	Eye.	Rabbit.	10 mg - Severe Irritation

TOXIC DOSE - LD 50: 7340 mg/kg (oral rat)

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:
Contact M-I Environmental Affairs for ecological information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product, should it become a waste, may be a hazardous waste by U.S. RCRA criteria. Contact M-I's Environmental Affairs Department for more information.
Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

PRODUCT RQ: N/A

U.S. DOT:
U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

SEA TRANSPORT:
IMDG CLASS: Not regulated.

AIR TRANSPORT:
ICAO CLASS: Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Calcium hydroxide	1305-62-0	Yes	No	No	No	Yes

US FEDERAL REGULATIONS:

WASTE CLASSIFICATION: May be a hazardous waste by RCRA criteria. Consult M-I Environmental Affairs before disposal.

REGULATORY STATUS: This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.
SARA 311 Categories:
1: Immediate (Acute) Health Effects.

The components of this product are listed on or are exempt from the following international chemical registries:
TSCA (U.S.)
DSL (Canada)
EINECS (Europe)

STATE REGULATIONS:

STATE REGULATORY STATUS: This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):.

Illinois Right-to-Know.
New Jersey Right-to-Know.
Pennsylvania Right-to-Know.

PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity, and for which warnings are now required.

CANADIAN REGULATIONS:

LABELS FOR SUPPLY:

REGULATORY STATUS: This Material Safety Data Sheet has been prepared in compilance with the Controled Product Regulations.

Canadian WHMIS Classification: D2B - Other Toxic Effects: Toxic Material

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX: 2 Moderate Hazard
FLAMMABILITY: 0 Minimal Hazard
REACTIVITY: 0 Minimal Hazard
NPCA HMIS PERS. PROTECT. INDEX: E - Safety Glasses, Gloves, Dust Respirator

USER NOTES:	N/A = Not applicable N/D = Not determined
INFORMATION SOURCES:	OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants. ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition). Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997). Product information provided by the commercial vendor(s).
PREPARED BY:	Sam Hoskin/bb
REVISION No./Repl. MSDS of:	2/August 27, 1998
MSDS STATUS:	Approved.
DATE:	May 29, 2001

DISCLAIMER:
MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditiions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

MATERIAL SAFETY DATA SHEET

AMBER CHEMICAL INC. - 5201 Boylan St. - BAKERSFIELD, CA 93308

CONTACT FOR FURTHER INFORMATION
MSDS COORDINATOR: 661-325-2072

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, ACCIDENT CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.

IDENTIFICATION

PRODUCT NAME: POLY-THIN

OSHA HAZARD: NONE
DOT CLASSIFICATION: NOT REGULATED

INGREDIENTS

SODIUM POLYACRYLATE	CAS# 9003-04-7	35%
WATER	CAS# 007732-18-5	65%

CONTAINS NO HAZARDOUS MATERIAL AS DEFINED BY OSHA HAZARD COMMUNICATION STANDARD CFR29-1910-1200.

PHYSICAL DATA

BOILING POINT: 212 F
SPECIFIC GRAVITY: 1.239
VAPOR DENSITY: <1.0 (WATER)
PERCENT VOLATILES: 65 (WATER)
APPEARANCE AND ODOR: CLEAR SOLUTION
HAZARD RATING (HMIS)

HEALTH	= 1
FLAMMABILITY	= 0
REACTIVITY	= 0

FREEZING POINT: < 32 F
VAPOR PRESSURE: 17 mm Hg 20 C
EVAPORATION RATE: <1.0
SOLUBILITY IN WATER: INFINITE
pH 9.0-9.5
HAZARD RATING SCALE
0 = MINIMAL
1 = SLIGHT
2 = MODERATE
3 = SERIOUS
4 = SEVERE

HEALTH HAZARDS/ROUTES OF ENTRY

EYE CONTACT: Product can cause slight irritation or redness upon direct contact.
SKIN CONTACT: May cause slight irritation to sensitive individual.
INHALATION: Unlikely source of hazard.
INGESTION: May cause abdominal pain and nausea.
COMMENTS: This product is essentially non-toxic. No chronic health effects are known at this time relative to repeated overexposure.

EMERGENCY AND FIRST AID PROCEDURE

EYE CONTACT: Flush eyes with clean water, seek prompt medical attention.
SKIN CONTACT: Wash affected areas thoroughly with mild soap and water. If irritation or redness develops and persists - seek medical attention.
INHALATION (BREATHING): Unlikely to cause adverse effects. If respiratory irritation develops, remove person to fresh air.
INGESTION (SWALLOWING): Give 2 or 3 glasses of water to dilute product. Induce vomiting and seek medical attention. Do not give anything by mouth to an unconscious person.

SPECIAL PROTECTION INFORMATION

VENTILIATION: Unnecessary in most cases. Open windows and doors to create drafts if desired.
RESPIRATORY PROTECTION: If space is misty use suitable mist mask.
PROTECTIVE GLOVES: Rubber gloves.
EYE PROTECTION: Safety glasses or better.
OTHER PROTECTIVE EQUIPMENT: N/A

REACTIVITY DATA:

STABILITY: Product is stable.
INCOMPATIBILITY (MATERIALS TO AVOID): None
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: CAUTION - Material will form a very slippery surface on floors. Guard against falls. Contain spill with inert materials or dikes. Clean up and store for disposal. Polymer can be coagulated by mixing with 50% calcium chloride solution in water. A clear water and white sludge will be formed. Dispose of liquid into a chemical sewer and the sludge into an approved land disposal in accordance with local, state and federal regulations.

STORAGE AND SPECIAL PRECAUTIONS:

HANDLING AND STORAGE PRECAUTIONS: Freezing will not destabilize product.

FIRE AND EXPLOSION HAZARD DATA:

NFPA HAZARD CLASS		
	HEALTH HAZARD:	1
	FLAMMABILITY:	0
	REACTIVITY:	0

HAZARD RANKING
0 = LEAST
1 = SLIGHT
2 = MODERATE
3 = HIGH
4 = EXTREME

LOWER EXPLOSIVE LIMIT (% VOL.): N/A
UPPER EXPLOSIVE LIMIT (% VOL.): N/A

FLASH POINT: Aqueous system, will not propagate flame.
EXTINGUISHING MEDIA: Aqueous system. Product will not burn until all water has evaporated. For dried solids use dry chemical, water fog, foam. CO or Halon.
FIRE & EXPLOSION HAZARDS: Some decomposition by-products may be toxic.
FIRE FIGHTING PROCEDURES: As a precaution, firefighters should wear self-contained breathing apparatus.

DOCUMENTARY INFORMATION:

PRODUCT NAME: POLY-THIN
PRODUCT CODE NO: 0144

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

The information in this document is believed to be correct as of the date issued. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use therof.

HERCULES

MSDS NO.: 300 3583 0100 VER: 09
SAP CODE: 100CM1003A00000007
ISSUE DATE: 10/01/2003
SUPERSEDES: 300 3583 0100 VER: 08

MATERIAL SAFETY DATA SHEET

Hercules Incorporated
Aqualon Division
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894
(302) 594-5000 24 HOURS

1 PRODUCT IDENTIFICATION

PRODUCT NAME	**AQUAPAC® CELLULOSE POLYMER**
CHEMICAL/COMMON NAME	sodium carboxymethylcellulose
CAS NUMBER	9004-32-4

2 COMPOSITION / INFORMATION ON INGREDIENTS

This product is considered hazardous according to the OSHA Hazard Communication Standard 29CFR1910.1200 due to flammable dust potential.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

Static charges generated by emptying package in or near flammable vapors may cause flash fire.
May form flammable dust-air mixtures.
May cause skin irritation by mechanical abrasion.
May cause mild eye irritation.
Inhalation of dust may cause respiratory tract irritation.
Surfaces subject to spills may become slippery.

POTENTIAL HEALTH EFFECTS

Repeated ingestion may cause an allergic reaction in susceptible individuals.
Prolonged or repeated skin contact may cause sensitization (allergic reaction) in susceptible individuals.

Refer to Section 5 for Hazardous Combustion Products, and Section 10 for Hazardous Decomposition/Hazardous Polymerization Products.

4 FIRST AID MEASURES

SKIN

Wash with soap and water. Get medical attention if irritation develops or persists.

EYE

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists.

INHALATION

Remove to fresh air. Get medical attention if nasal, throat or lung irritation develops.

INGESTION

No adverse health effects are expected from accidental ingestion of small amounts of this product. For ingestion of large amounts: If conscious, drink one to two glasses of water (8-16 oz.). Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.

5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray, dry chemical, foam, carbon dioxide or clean extinguishing agents may be used on fires involving this product.

FIRE FIGHTING PROCEDURES

Wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear when fighting fires involving this product.

CONDITIONS TO AVOID

None known.

HAZARDOUS COMBUSTION PRODUCTS

If heated to decomposition, the following substances may be formed: carbon monoxide , carbon dioxide and smoke

AUTOIGNITION TEMPERATURE > 698 ° F (dust)

6 ACCIDENTAL RELEASE MEASURES

Ventilate area. Avoid dust formation. Clean up spills immediately. If product is not contaminated, scoop into clean containers for use. If product is contaminated, scoop into containers, and dispose appropriately. In case of accidental spill or release, refer to Section 8, Personal Protective Equipment and General Hygiene Practices.

7 HANDLING & STORAGE

GENERAL MEASURES

Ground all equipment.
Blanket vessel with inert gas when emptying bags where flammable vapors may be present.
Ground operator and pour material slowly into conductive, grounded chute.
For large bags (1000 lbs or greater) a ground cable MUST be attached to the bag ground connection.
Store in a cool, dry, well ventilated area.
Keep container closed when not in use.

MATERIALS OR CONDITIONS TO AVOID

Avoid conditions that generate dust; product may form flammable dust-air mixtures.
Avoid emptying package in or near flammable vapors; static charges may cause flash fire.
Keep away from heat, flame, sparks and other ignition sources.
Do not store in direct sunlight or expose to UV radiation.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

WORK PRACTICES & ENGINEERING CONTROLS

Eyewash fountains and safety showers should be easily accessible.
Provide adequate ventilation.
If upper respiratory tract irritation occurs, use an approved dust/mist respirator to minimize exposure.
Keep floors clean and dry. Clean up spills immediately.

GENERAL HYGIENIC PRACTICES

Avoid contact with eyes, skin, and clothing.
Avoid breathing dust.
Handle in areas with adequate ventilation.
Avoid contamination of food, beverages, or smoking materials.
Wash thoroughly after handling, and before eating, drinking or smoking.
Remove contaminated clothing promptly and clean thoroughly before reuse.

RECOMMENDED EXPOSURE LIMITS

No exposure limit has been established. This product may irritate the upper respiratory tract if used under conditions that create dust or mist particulates.

PERSONAL PROTECTIVE EQUIPMENT

Safety glasses
Impervious gloves
Appropriate protective clothing
Wear approved dust/mist respirator if user operations create dust/mist that causes irritation.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE

Eliminate ignition sources and prevent build-up of static electrical charges.
Completely isolate and thoroughly clean all equipment, piping, or vessels before beginning maintenance or repairs.
Keep area clean.

9 PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE:	granular powder
COLOR:	white to off-white
ODOR:	odorless
Specific Gravity	1.59
Percent Volatile	negligible at 68° F
Solubility In Water	limited by viscosity
Browning Temperature	440 ° F
Moisture Content,(Wt.)%	8.0 max. (as packed)

10 STABILITY & REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS

None known.

HAZARDOUS POLYMERIZATION

Not anticipated under normal or recommended handling and storage conditions.

GENERAL STABILITY CONSIDERATIONS

Stable under recommended handling and storage conditions.

INCOMPATIBLE MATERIALS

None known

11 TOXICOLOGICAL INFORMATION

CARCINOGENICITY INFORMATION

PRODUCT/SIMILAR PRODUCT - Not listed as a carcinogen by NTP. Not regulated as a carcinogen by OSHA. Not evaluated by IARC.

REPORTED HUMAN EFFECTS

PRODUCT/SIMILAR PRODUCT - A single case of allergic dermatitis after repeated long-term skin contact has been reported in the medical literature. A single case of anaphylaxis after ingestion has been reported in medical literature. Due to the physical nature of this material, may cause eye, skin and respiratory irritation.

REPORTED ANIMAL EFFECTS

PRODUCT/SIMILAR PRODUCT - Reported to cause rabbit eye irritation after exposure to dust. Low order of oral toxicity based on acute and chronic studies in several species.

MUTAGENICITY/GENOTOXICITY INFORMATION

PRODUCT/SIMILAR PRODUCT - Not mutagenic in Ames assay or chromosome aberration test.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

PRODUCT/SIMILAR PRODUCT - Acute aquatic 96-hour static LC50 value falls within the practically nontoxic range of 100-1000 mg/L, according to the U. S. Fish and Wildlife criteria. Rainbow trout and Bluegill sunfish were the species tested.

BIODEGRADABILITY

This product is biodegradable.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Landfilling in a permitted solid or hazardous waste facility is recommended. Handling, transportation, and disposal of material should be conducted in a manner to prevent a nuisance dust hazard Fully containerize the material before handling, and protect from exposure to the outdoors. Ensure there are no restrictions on disposing of bulk or semi-bulk quantities of waste material. Disposal should be in accordance with all Federal, State and local regulations.

14 TRANSPORT INFORMATION

GENERAL

This product is not subject to DOT regulations.

For specific information regarding transportation of this product, please call the Hercules representative at (905) 279-3338.

15 REGULATORY INFORMATION

CHEMICAL INVENTORIES

U.S. TSCA: The components of this product are included on the TSCA Inventory.
Canadian CEPA : Included on DSL Inventory.

SARA TITLE III - SECTIONS 302/304

This product is not an Extremely Hazardous Substance subject to reporting under 40CFR355.

SARA TITLE III - SECTION 311 AND 312

NHH: Not a health hazard
HC-3: Fire hazard

SARA TITLE III - SECTION 313

This product does not contain any chemicals subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act and 40CFR372.

CERCLA

This product does not contain any chemicals subject to reporting as a CERCLA Hazardous Substance under 40CFR302.4.

RCRA

This product is not a hazardous waste as listed in 40CFR261.33. It does not exhibit any of the hazardous characteristics listed in 40CFR261, Subpart C.

16 OTHER INFORMATION

HMIS RATINGS:

Health	1	Slight Hazard
Flammability	1	Slight Hazard
Reactivity	0	Minimal Hazard

LIST OF ACRONYMS

ACGIH: American Conferences of Governmental Industrial Hygienists
AIHA WEEL: American Industrial Hygienists Association-Workplace Environmental Exposure Level
ANSI: American National Standards Institute
CASRN: Chemical Abstracts Service Registry Number
CEPA: Canadian Environmental Protection Act
CERCLA: Comprehensive Emergency Response, Compensation and Liability Act
DSL: Domestic Substances List (Canadian)
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
NDSL: Non-Domestic Substances List (Canadian)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit (OSHA)
RCRA: Resource Conservation and Recovery Act
RQ: Reportable Quantity
SARA: Superfund Amendment Reauthorization Act
STEL: Short-Term Exposure Limit
TLV: Threshold Limit Values (registered trademark of ACGIH)
TPQ: Threshold Planning Quantity
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average

DISCLAIMER

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

MSDS STATUS

Effective Date	MSDS Revision(s)	Supersedes Date
10/01/2003	Sections 2, 6 and 8	10/06/1999

SECTION 1 – PRODUCT IDENTIFICATION AND USE

Product: Calcium Carbonate (Limestone)

Product Uses: Mineral filler and pigment

Chemical Formula: Primarily $CaCO_3$

Trade Names:

OMYACARB® 2 - LU	OMYACARB® 8 - LU	OMYACARB® 40 - LU	OMYACARB® HP
OMYACARB® 3 - LU	OMYACARB® 10 - LU	OMYACARB® BP - LU	OMYACARB® MP 200
OMYACARB® 4 - LU	OMYACARB® 15 - LU	OMYACARB® CP - LU	TITAN® 200 - LU

Producer: Omya California Inc.

Address: 7299 Crystal Creek Road, Lucerne Valley, California, USA 92356

Telephone: (760) 248-5200

Emergency: (800) 424-9300 (CHEMTREC)

SECTION 2 – HAZARDOUS INGREDIENTS

Ingredients:	Wt. % (typical):	CAS #:	Exposure Limits (TWA) mg/m³:	
Limestone (calcium carbonate)	> 99	1317-65-3	ACGIH TLV: OSHA PEL:	Total dust, 10 (<1% silica) Total dust, 15 Respirable dust, 5
Silica, quartz *(naturally-occurring component of limestone)*	< 0.3	14808-60-7	ACGIH TLV: OSHA PEL:	Respirable dust, 0.05 Total dust, 30 / % silica + 2 Respirable dust, 10 / % silica + 2

Hazardous Materials Identification System:
(National Paint & Coatings Association)

Category	Rating
Health	1*
Flammability	0
Physical Hazard	0

SECTION 3 – PHYSICAL CHARACTERISTICS

Appearance and Odor: White powder; no odor.

Density: 2.7 g/ml

Solubility in Water: 1.3 mg/100 g @ 18°C

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point: Non-flammable.

Special Fire Fighting Procedures: None.

Unusual Fire and Explosion Hazards: None.

SECTION 5 – REACTIVITY DATA

Stability: Stable.

Reactivity in Water: None.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Thermal decomposition can produce calcium oxide and carbon dioxide.

Incompatibility (Material to Avoid): Reacts with acids to liberate carbon dioxide. Ignites on contact with fluorine. Also incompatible with alum and ammonium salts.

SECTION 6 – TOXICOLOGICAL PROPERTIES AND HEALTH HAZARD DATA

EFFECTS AND HAZARDS OF ACUTE EXPOSURE:

Inhalation: Dust may irritate the respiratory tract. Symptoms include sneezing and slight nose irritation.

Eye Contact: Irritation. Symptoms include watering and irritation.

Skin Contact: Repeated or prolonged exposure may have a drying effect on the skin, and may also cause irritation.

Ingestion: Ingestion of very large quantities may result in intestinal obstruction and/or constipation.

EFFECTS AND HAZARDS OF CHRONIC EXPOSURE:

There are no reported health effects associated with repeated or prolonged exposure to pure calcium carbonate. Chronic exposure to limestone dust at concentrations exceeding occupational exposure limits may cause pneumoconiosis (lung disease). This product contains crystalline silica (quartz) as an impurity. Chronic exposure to crystalline silica dust at concentrations exceeding occupational exposure limits may cause silicosis. The NTP's Ninth Report on Carcinogens lists crystalline silica (respirable size) as a known human carcinogen. IARC concluded that there is sufficient evidence in humans for the carcinogenicity of inhaled (respirable) crystalline silica.

SECTION 7 – PREVENTIVE MEASURES

Handling: Administrative and/or engineering control methods such as, but not limited to, process enclosure and exhaust ventilation may be necessary to control dust exposures. Supply sufficient replacement air to make up for air removed by exhaust systems. If engineering controls and work practices are not effective in controlling exposures, appropriate personal protective equipment including a NIOSH/OSHA approved dust respirator should be worn. When repeated or prolonged contact with hands is likely, appropriate gloves should be used. Appropriate eye protection should be worn. Selection of all personal protective equipment should be performed by an Industrial Hygienist or other qualified professional.

Storage: Store in closed containers in a dry place separate from incompatible materials.

Spills/Leaks: Measures should be taken to minimize and protect against airborne dust during cleanup operations, including use of respiratory protective equipment if necessary.

Disposal: From a waste perspective, this product is not considered hazardous and may be disposed of as solid waste in accordance with applicable federal, state, provincial, and local regulations.

SECTION 8 – FIRST AID MEASURES

Inhalation: Remove to fresh air. Obtain medical advice if required.

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 10 minutes holding the eyelid(s) open. If irritation persists, obtain medical advice immediately.

Skin Contact: Wash with warm water and mild soap. If irritation occurs, obtain medical advice immediately.

Ingestion: Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. Rinse mouth thoroughly with water. Do not induce vomiting. Drink 8 to 10 ounces (240 to 300 ml) of water to dilute material in stomach. Obtain medical advice immediately.

SECTION 9 – REGULATORY INFORMATION

TSCA: This product primarily is natural calcium carbonate from limestone ore which is listed on the U.S. EPA TSCA inventory under Limestone, CAS# 1317-65-3. In addition, all other ingredients and/or processing aids are also on the TSCA inventory.

DSL: By virtue of its status as a “substance occurring in nature”, ground limestone is considered to be on the Canadian Domestic Substances List. In addition, all other ingredients and/or processing aids are also on the DSL.

CONEG: Being derived from limestone ore, this product may contain incidental trace levels of naturally occurring metals. However, no metals are intentionally added and this product complies with the CONEG requirement of <100 ppm of Cd, Cr^{+6}, Pb, and Hg.

ODC’s: This product does not contain, nor is it produced with, any U.S. EPA-defined Class I or Class II ozone-depleting chemicals.

FDA: This product may be used as an indirect food additive in food packaging applications under 21 CFR (FDA) 174.5, 175.300, and 178.3297. This product does not qualify as a substance permitted for direct addition to human food or animal feed.

SECTION 10 – PREPARATION INFORMATION FOR MATERIAL SAFETY DATA SHEET

Prepared by Technical Support Group

The information contained herein has been compiled by Omya from sources it considers reliable, and is accurate to the best of Omya’s knowledge. Before using the product identified hereon, the foregoing MSDS and the product label should be read carefully. The information contained herein relates only to the product identified hereon, and does not relate to its use in combination with any other material or in any process. Customers are encouraged to conduct their own tests concerning the use of the product identified hereon as each customer’s manner and conditions of use and handling may involve additional considerations. Omya assumes and shall incur no liability for any damages, losses, injuries, costs, or consequential damages that may result from the use or misuse of the product identified hereon, and the recipient assumes all of such liability.

SAFETY DATA SHEET
MAGMA FIBER

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

PRODUCT NAME: MAGMA FIBER

APPLICATIONS: Lost circulation material.

SUPPLIER:
M-I Drilling Fluids UK Ltd,
Pocra Quay,
Footdee,
Aberdeen. AB11 5DQ
Tel: 44 (0)1224 - 584336
Fax: 44 (0)1224 - 576119

EMERGENCY TELEPHONES: 001 281 561 1600 (USA)

2. COMPOSITION/INFORMATION ON INGREDIENTS

GROSS FORMULA: Mineral fiber

COMPOSITION COMMENTS: This product is classified as containing no hazardous ingredients according to the EC Directives.

3. HAZARDS IDENTIFICATION

Not regarded as a health hazard under current legislation.

4. FIRST AID MEASURES

INHALATION: Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

INGESTION: First aid is not normally required. Rinse mouth thoroughly. Drink plenty of water.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES: No specific fire fighting procedure given. This material is not combustible.

UNUSUAL FIRE & EXPLOSION HAZARDS: High concentrations of dust may form explosive mixture with air.

HAZARDOUS COMBUSTION PRODUCTS: Not relevant.

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEANUP METHODS: Shovel into dry containers. Cover and move the containers. Flush the area with water. Wear necessary protective equipment.

7. HANDLING AND STORAGE

USAGE PRECAUTIONS: Avoid handling which leads to dust formation. Provide good ventilation.

STORAGE PRECAUTIONS: Store at moderate temperatures in dry, well ventilated area.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

INGREDIENT COMMENTS: This material is considered a nuisance dust, OES TWA 4mg/m3 Respirable Dust, 10 mg/m3 Total Dust.

PROTECTIVE EQUIPMENT:

VENTILATION: Provide adequate general and local exhaust ventilation.

RESPIRATORS: Respiratory protection must be used if air concentration exceeds acceptable level. Dust filter P2 (for fine dust).

PROTECTIVE GLOVES: No specific hand protection noted, but gloves may still be advisable. For prolonged or repeated skin contact use suitable protective gloves. Rubber or plastic.

EYE PROTECTION: Wear dust resistant safety goggles where there is danger of eye contact.

OTHER PROTECTION: Wear appropriate clothing to prevent repeated or prolonged skin contact. Provide eyewash station.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Powder, dust.

COLOUR: Grey. to Tan.

ODOUR/TASTE: Odourless or no characteristic odour.

DENSITY/SPECIFIC GRAVITY (g/ml): 2.6 **Temperature (°C):** 20

SOLUBILITY DESCRIPTION: Insoluble in water.

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

MATERIALS TO AVOID: Strong acids.

HAZARDOUS DECOMP. PRODUCTS: Not relevant.

11. TOXICOLOGICAL INFORMATION

INHALATION: Dust may irritate respiratory system or lungs.

INGESTION: May cause discomfort if swallowed.

SKIN: Powder may irritate skin.

EYES: Particles in the eyes may cause irritation and smarting.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Not regarded as dangerous for the environment. Contact M-I's Environmental Affairs Department for ecological information.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: Recover and reclaim or recycle, if practical. Dispose of on site landfill area. Dispose of in accordance with Local Authority requirements.

14. TRANSPORT INFORMATION

ROAD TRANSPORT NOTES: Not Classified

RAIL TRANSPORT NOTES: Not Classified.

SEA TRANSPORT NOTES: Not Classified.

AIR TRANSPORT NOTES: Not Classified.

15. REGULATORY INFORMATION

RISK PHRASES: Not classified.

SAFETY PHRASES: Not classified.

STATUTORY INSTRUMENTS: Chemicals (Hazard Information and Packaging) Regulations. Control of Substances Hazardous to Health.

GUIDANCE NOTES: Occupational Exposure Limits EH40.

16. OTHER INFORMATION

USER NOTES: HMIS Health - 1 HMIS Flammability - 0 HMIS Physical Hazard - 0 E - Safety glasses, Gloves, Dust Respirator

INFORMATION SOURCES: Material Safety Data Sheet, Misc. manufacturers. Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997). The Merck Index, 11. edition, 1989.

ISSUED BY: Sarah Glover

REVISION DATE: 25-04-03

REV. No./REPL. SDS GENERATED: 2

PRINTING DATE: 2003-04-25

DISCLAIMER: MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

MATERIAL SAFETY DATA SHEET
MICRO C

Date: 8/10/01

1. Product and Company Identification

Product Name: MICRO C
Chemical Name: pulverized cellulose - lignin
Chemical Family: Organic

Manufacturer: Grinding & Sizing Co., Inc.
PO BOX 1808
Lufkin Texas 75902
Phone Numbers: 936-634-5176
713-676-0922 Technical

2. **Composition:**

Pulverized cellulose fiber – 100%

Hazardous Ingredients
none

3.**Physical and Chemical Properties**

- Appearance: tan powdered solid
- Insoluble in water
- Boiling point n/a
- Melting point n/a
- Vapor Pressure n/a
- Bulk Density: 17.5 – 22.5 lb./cu.ft.
- Odor, none
- pH (aq. Sol'n): 5

4. Fire and Explosion Data

- Flashpoint: n/a
- Flammable limits: n/a
- Extinguishing media: Water
- Special fire fighting procedures: Evacuate all unnecessary personnel. Wear appropriate safety equipment for fire conditions including SCBA. Punks when ignited, does not readily burn with a flame.

5. **Stability and Reactivity**

- Stability: stable
- Reactivity: avoid excessive heat and strong oxidants
- Hazardous Decomposition: none
- Does not polymerize

6. **Health Hazard Data**:

- Acute Effects: irritating to the respiratory tract if inhaled
- Ingestion: May cause gastric irritation.
- Eyes: Irritating to the eyes
- Skin: Irritating to the skin upon prolonged contact
- Chronic Effects: IARC not listed; OSHA not listed; NTP not listed.
- Route of entry: inhalation, skin and eye contact
- First aid procedures:

  Eyes: flush with large amounts of water for 15 minutes
  Skin: wash with soap and water
  Inhalation: move victim to fresh air
  Ingestion: administer water

7. **Precautions for Safe Handling & Use**

- In case of spillage, contain and collect material. Place in suitable container for reuse or disposal.
- Dispose in accordance with state, local, and federal regulations.
- Handle only in well ventilated areas. Avoid breathing dust.
- Store in cool dry place, keep away from oxidizing agents.

8. **Exposure Controls, Personal Protection**

- Ventilation-Local exhaust and ventilation system is recommended if handled in a confined area to control below recommended exposure levels.
- Respiratory Protection- Use NIOSH approved air purifying respirator.
- Eye Protection-Use safety glasses with side shields
- Skin Protection-Use long-sleeved clothing and gloves

9. **Toxicological Information**

- No toxicological information is available on this product

10. **Ecological Information**

- No ecological information is available

11. **DOT Information**

- Proper Shipping Name: Not regulated by DOT as a hazardous material
- Hazard class: none
- UN Number: none
- Packing Group: none

12. Regulatory Information

- OSHA (29 CFR 1910.1200) This product should be included in a hazard communication program.
- RCRA: If this product becomes a waste, it may be characterized as a hazardous waste ad prescribed by RCRA.
- CERCLA : Not subject to reporting
- NFPA Hazard Codes: Health:1, Flammability: 0, Reactivity: 0, Special hazards: 0

CYTEC

Technology ahead of its time™

MSDS: 0015433
Date: 05/14/2004

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**CYDRIL® 5310 Drilling Mud Additive**
Synonyms:	None
Chemical Family:	Anionic polyacrylamide copolymer
Molecular Formula:	Mixture
Molecular Weight:	Mixture

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WEST PATERSON, NEW JERSEY 07424, USA
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.
EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC: 1-800/424-9300. Outside the USA and Canada call 1-703/527-3887.

® indicates trademark registered in the U.S. Outside the U.S., mark may be registered, pending or a trademark. Mark is or may be used under license.

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

Component / CAS No.	% (w/w)	OSHA (PEL):	ACGIH (TLV)	Carcinogen
Petroleum distillate hydrotreated light 64742-47-8	24.00	500 ppm 1200 mg/m^3 (Supplier) 165 ppm (Supplier)	Not Established	-
Alcohols (C12-16), ethoxylated 68551-12-2	~ 0 - 3.1	Not Established	Not Established	-
Alcohols (C10-16), ethoxylated 68002-97-1	~ 0 - 3.1	Not Established	Not Established	-

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color:	white
Appearance:	viscous liquid
Odor:	hydrocarbon

STATEMENTS OF HAZARD:

WARNING! CAUSES SKIN IRRITATION
MAY CAUSE EYE IRRITATION

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:
Acute oral (rat) and acute dermal (rabbit) LD50 values are >10 g/kg. Minimal eye irritation was produced in rabbit testing. When this product was tested in rabbits for skin irritation under occlusive conditions, as would be produced if the product was spilled into boots, irreversible skin damage was produced. When the product was tested under non- occlusive conditions with 24 hours of skin contact, as would occur when product was spilled on clothing, some eschar formation was observed but the overall skin irritation score was lower (2.2 moderately irritating). The estimated 4-hour inhalation (rat) LC50 value is >20 mg/l.
Refer to Section 11 for toxicology information on the regulated components of this product.

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4. FIRST AID MEASURES

Ingestion:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin Contact:
Remove contaminated clothing and shoes without delay. Wash immediately with plenty of water. Do not reuse contaminated clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

Eye Contact:
Rinse immediately with plenty of water for at least 15 minutes.

Inhalation:
Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

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5. FIRE-FIGHTING MEASURES

Extinguishing Media:
Use water spray, carbon dioxide or dry chemical.

Protective Equipment:
Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:
Keep containers cool by spraying with water if exposed to fire.

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6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods For Cleaning Up:
Product may cause a slip hazard. Spilled material should be absorbed onto an inert material and scooped up. Flush spill area with water. If slipperiness remains apply more dry-sweeping compound.

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Handling Statements: None

STORAGE

To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. Flashpoint determinations on materials of this type are required by certain regulations and scientific standards to be performed using a Pensky-Martens type closed cup test method. This method indicates a flash point greater than 93.3 C (200 F). Although there was no flashpoint detected below 93.3 C (200 F) by the Pensky-Martens Closed Tester method, some flammable vapors were evolved during the test as evidenced by the enlargement of the test flame; therefore, caution should be exercised during storage and handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory Protection:

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

Eye Protection:

Wear eye/face protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact. Wear impermeable gloves and suitable protective clothing.

Additional Advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	white
Appearance:	viscous liquid
Odor:	hydrocarbon
Boiling Point:	Aqueous phase ~100 C; Oil phase ~175 C
Melting Point:	-18 °C 0 °F
Vapor Pressure:	Not available
Specific Gravity:	~1.0
Vapor Density:	Similar to water
Percent Volatile (By Wt.):	65 - 70
pH:	6 - 8(upon dilution in water)
Saturation In Air (% By Vol.):	Not available
Evaporation Rate:	<1(Butyl acetate = 1)
Solubility In Water:	Limited by viscosity
Volatile Organic Content:	26 % (g/g)

Flash Point:	>93 °C 200 °F
Flammable Limits (% By Vol):	Not available
Autoignition Temperature:	Not available
Decomposition Temperature:	Not available
Partition coefficient (n-octanol/water):	Not available
Odor Threshold:	See Section 2 for exposure limits.

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	None known
Polymerization:	Will not occur
Conditions To Avoid:	None known
Materials To Avoid:	Strong oxidizing agents. This material reacts slowly with iron, copper and aluminum, resulting in corrosion and product degradation.
Hazardous Decomposition Products:	carbon monoxide carbon dioxide ammonia oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION.
Toxicological information on the regulated components of this product is as follows:

Petroleum distillates, hydrotreated light (CAS# 64742-47-8) has acute oral (rat) and dermal (rabbit) LD50 values of >5 g/kg and >3.16 g/kg, respectively. Prolonged or repeated skin contact tends to remove skin oils, possibly leading to irritation and dermatitis. Direct contact may cause eye irritation. Overexposure to high vapor concentrations, >~700 ppm, are irritating to the eyes and respiratory tract and may cause headaches, dizziness, drowsiness, and other central nervous system effects, including death. Aspiration of minute amounts during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death. In a 90-day oral gavage (rats) study at 100, 500, or 1000 mg/kg, no treatment-related mortalities were observed. There were no significant changes in body weights or food consumption in any dose groups. Increased liver weights were observed in male and female rats a 500 and 1000 mg/kg. Increased kidney weights were observed only in male rats at 500 and 1000 mg/kg. Testes weights were significantly elevated in male rats at 1000 mg/kg. Kidney effects, indicative of light hydrocarbon nephropathy, occured in male rat kidneys at all dose levels. Histological findings of hepatocellular hypertrophy were seeen in the livers of male rats at 1000 mg/kg and in female rats at 500 and 1000 mg/kg. All treatment-related effects were reversible within the 4-week recovery period. Observed kidney effects (including light hydrocarbon nephropathy and increased kidney weight) are a unique response by male rats to chronic hydrocarbon exposure, which th U.S. EPA has declared `not relevant to humans`. High-dose liver effects (including hepatocellular hypertrophy, or enlarged liver cells) are a direct consequence of the sustained high-fat `hydrocarbon diet`. The No Observed Adverse Effect Level (NOAEL) for this study was 1000 mg/kg.

Alcohols (C12-16), ethoxylated toxicological properties have not been fully investigated. Based on similar materials, the acute oral (rat) LD50 is estimated to range from 1600 - 2500 mg/kg and the acute dermal (rabbit) LD50 value is estimated to be >2000 mg/kg. Similar materials produced severe eye irritation and moderate skin irritation in studies with rabbits.

Alcohols (C10-16), ethoxylated toxicological properties have not been fully investigated. Based on similar materials, the acute oral (rat) LD50 is estimated to range from 1600 - 2500 mg/kg and the acute dermal (rabbit) LD50 value is estimated to be >2000 mg/kg. Similar materials produced severe eye irritation and moderate skin irritation in studies with rabbits.

California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause cancer.

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12. ECOLOGICAL INFORMATION

This material is not classified as dangerous for the environment.
All ecological information provided was conducted on a structurally similar product.
Acute toxicity tests conducted on the polymer using environmentally representative water gave the following results:

ALGAE TEST RESULTS

Test: Growth Inhibition (OECD 201)
Duration: 72 hr
Species: Green Algae (Selenastrum capricornutum)
>100 mg/l IC50

FISH TEST RESULTS

Test: Acute toxicity, freshwater (OECD 203)
Duration: 96 hr.
Species: Bluegill Sunfish (Lepomis macrochirus) Zebra Fish (Brachydanio rerio)
>100 mg/l LC50

INVERTEBRATE TEST RESULTS

Test: Acute Immobilization (OECD 202)
Duration: 48 hr
Species: Water Flea (Daphnia magna)
>100 mg/l EC50

DEGRADATION

Test: CO2 Evolution: Modified Sturm (OECD 301B)

The polymeric ingredient is not readily biodegradable. The large polymer size is incompatible with transport across biological membranes and diffusion; the bioconcentration factor is therefore considered to be zero.

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13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the Cytec product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA `listed hazardous waste`or has any of the four RCRA `hazardous waste characteristics.`Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA `listed hazardous waste`; information contained in Section 15 of this MSDS is not intended to indicate if the product is a `listed hazardous waste.`RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. Cytec encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. Cytec recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. Cytec has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

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14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Proper Shipping Name: Not applicable/Not regulated
Hazardous Substances:
Not applicable

TRANSPORT CANADA

Proper Shipping Name: Not applicable/Not regulated

ICAO / IATA

Proper Shipping Name: Not applicable/Not regulated
Packing Instructions/Maximum Net Quantity Per Package:
Passenger Aircraft: -
Cargo Aircraft: -

IMO

Proper Shipping Name: Not applicable/Not regulated

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15. REGULATORY INFORMATION

INVENTORY INFORMATION

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Union (EU): All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

This product does not contain any components regulated under these sections of the EPA

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute

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16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 1 - Materials that must be preheated before ignition can occur.

Reactivity: 0 - Materials that in themselves are normally stable, even under fire exposure conditions.

Reasons For Issue: New Product

Randy Deskin, Ph.D., DABT +1-973-357-3100

This information is given without any warranty or representation. We do not assume any legal responsibility for same, nor do we give permission, inducement, or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation, and verification. Before using any product, read its label.

CAUTION
Wood Dust

Sequoia Forest Industries
P. O. Box 305 / 6801 Ave. 430
Dinuba, Ca. 93618
(209)591-2000

SAWING, SANDING OR MACHINING WOOD PRODUCTS CAN PRODUCE WOOD DUST WHICH CAN CAUSE A FLAMABLE OR EXPLOSIVE HAZARD.

WOOD DUST MAY CAUSE LUNG, UPPER RESPIRATORY TRACT, EYE AND SKIN IRRITATION. SOME WOOD SPECIES MAY CAUSE DERMATITIS AND/OR RESPIRATORY ALLERGIC EFFECTS.

- **Avoid dust contact with ignition source.**
- **Sweep or vacuum dust for recovery or disposal.**
- **Avoid prolonged or repeated breathing of wood dust in air.**
- **Avoid dust contact with eyes and skin.**
- **FIRST AID: If inhaled, remove to fresh air. In case of contact, flush eyes and skin with water. If irritation persists, call a physician.**

For additional information, see the Material Safety Data Sheet.

IMPORTANT: *The information and data contained herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. WWPA makes no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. WWPA will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.*

Notes:

1. *Preventative measures and first aid instruction (shown as bulleted items above) are not required on labels, but may be added voluntarily.*
2. *Labels must be legible and prominently displayed. There are no specific requirements for size, color, or any specified text.*
3. *This label is designed to address the requirements of the OSHA Hazard Communication Standard with respect to wood dust. You may want to consult other sources such as the American National Standards Institute for general guidance on the preparation of warnings.*

MATERIAL SAFETY DATA SHEET
WOOD DUST

Sequoia Forest Industries
P. O. Box 305 / 6801 Ave. 430
Dinuba, Ca. 93618
(209)591-2000

TRADE NAME: Wood Dust
SYNONYMS: None
CAS. NO.: None
DESCRIPTION: Particles generated by any manual or mechanical cutting or abrasion process performed on wood.

PHYSICAL DATA

Boiling Point . . . . . Not Applicable

Specific Gravity . . . . . .
Variable
Dependent on wood species and moisture content.

Vapor Density . . . . . Not Applicable

% Volatiles of Volume . . . . . Not Applicable

Melting Point . . . . . Not Applicable

Vapor Pressure . . . . . Not Applicable

Solubility in H_2O (% by wt.) . . . . . Insoluable

Evaporation Rate
(Butyl Acetate = 1) . . . . . Not Applicable

pH . . . . . Not Applicable

Appearance & Odor . . . . . .
Light to dark colored granular solid
Color and odor are dependent on the wood species and time since dust was generated.

FIRE & EXPLOSION DATA

Flash Point . . . . . Not Applicable

Autoignition Temperature . . . . . .
Variable
Typically 400-500° F.

Explosive Limits in Air . . . . 40 grams M^3 (LEL)

Extinguishing Media . . . . . Water, CO_2, Sand

Special Fire Fighting Procedures . . . . . .
Wet down with water
Wet down wood dust to reduce the likelihood of ignition or dispersion of dust into the air. Remove burned or wet dust to open area after fire is extinguished.

Unusual Fire &
Explosion Hazard . . . . . .
Strong to severe explosion hazard
If wood dust "cloud" contacts an ignition source.

HEALTH EFFECTS DATA

Exposure Limit . . . . . .
ACGIH TLV (*):
TWA-5.0 mg/m³;
STEL. (15 min.)-10 mg/m³ Softwood.
TWA-1.0 mg/m³
Certain hardwoods such as beech and oak.
OSHA PEL: (For OSHA PELs, see footnote 1 below)
TWA-5.0 mg/m³;
STEL. (15 min.)-10 mg/m³
All softwoods, hardwoods, except Western Red Cedar.
Western Red Cedar:
TWA-2.5 mg/m

Skin & Eye Contact . . . . . .
Eye Irritation & Dermatitis
Wood Dust can cause eye irritation. Various species of wood dust can effect allergic contact dermatitis in sensitized individuals.

Ingestion . . . . . Not Applicable

Skin Absorption . . . . . Not known to occur

Inhalation . . . . . .
May cause
Nasal dryness, irritation & obstruction, coughing, wheezing, & sneezing. Sinusitis & prolonged colds have also been reported.

Chronic Effects . . . . . .
May cause
Wood dust, depending on species, may cause dermatitis on prolonged, repetitive contact; may cause respiratory sensitization and/or irritation. Prolonged exposure to wood dust has been reported by some observers to be associated with nasal cancer. Wood dust is not listed as a carcinogen by IARC, NTP, ACGIH or OSHA.

[1] Although OSHA's Air Contaminants Rule, including OSHA's wood dust PELs, was struck down in *AFL-CIO v. OSHA*, 965 F. 2d 962 (11th Cir. 1992), a number of states have incorporated those provisions in their state plans. Additionally, OSHA has announced that it may cite companies under the OSH Act general duty clause under appropriate circumstances for non-compliance with these levels.

MATERIAL SAFETY DATA SHEET CONTINUED

REACTIVE DATA

Conditions Contributing to Instability . . . . . .
Stable
Under normal conditions.

Incompatibility . . . . . .
Avoid contact with
Oxidizing agents, drying oils & open flame. Product may ignite at temperatures in excess of 400° F.

Hazardous Decomposition Products . . . . . .
Thermal-oxidative degradation of wood produces:
Irritating & toxic fumes & gases, including CO, aldehydes and inorganic acids.

Conditions contributing to Polymerization . . . . . Not Applicable

PRECAUTIONS & SAFE HANDLING

Eye Contact . . . . . Avoid

Skin Contact . . . . . .
Avoid
Repeated or prolonged contact with skin. Careful bathing & clean clothes are indicated after exposure.

Inhalation . . . . . .
Avoid
Repeated or prolonged breathing of wood dust in air.

Oxidizing Agents & Drying Oils . . . . . Avoid contact

Open Flame . . . . . Avoid

GENERALLY APPLICABLE CONTROL MEASURES

Ventilation . . . . . .
Provide
Adequate general & local exhaust ventilation to maintain healthful working conditions.

Safety Equipment . . . . . .
Provide & Wear
Goggles or safety glasses. Other protective equipment such as gloves & approved dust respirators may be needed depending upon dust conditions.

EMERGENCY & FIRST AID PROCEDURES

Eyes . . . . . .
Flush with water
To remove dust particles. If irritation persists, get medical attention.

Skin . . . . . .
Get medical advice
If a rash or persistent irritation or dermatitis occur and before returning to work where wood dust is present.

Inhalation . . . . . .
Remove to fresh air
If persistent irritation, severe coughing or breathing difficulties occur, get medical advice before returning to work where wood dust is present.

Ingestion . . . . . Not Applicable

SPILL/LEAK CLEAN-UP PROCEDURES

Recovery or disposal . . . . . .
Clean-up
Sweep or vacuum spills for recovery or disposal; avoid creating dust conditions. Provide good ventilation where dust conditions may occur. Place recovered wood dust in a container for proper disposal.

IMPORTANT:
The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. There is no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. WWPA will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.

TORKease ®

MATERIAL SAFETY DATA SHEET

TORKease is a drilling product from DSC Incorporated, PO Box 9464, The Woodlands, Texas 77387, Phone (281) 932-8290, Fax (603) 584-6058; www.TORKease.com.

EPA Registration Number for this non-hazardous, non-toxic, biodegradable mud additive product is 11281490. Applicable SARA Title III subsections: None established.

NO HAZARDOUS INGREDIENTS: **TORKease** is a proprietary blend of complex stearates. All components of **TORKease** are well below the DeMinimis Allowable which EPA has established as non-toxic and non-hazardous. Metals Analysis in ppm: Barium <60; Lead 125; Cadmium <5; Chromium 59; Zinc <4; Copper <17; Iron 90; Silver 13; Manganese <14; Arsenic <5; Selenium <5; Mercury <5

SPECIAL HAZARD DESIGNATIONS:

•Flammability -	Minimal	•Protective Equipment -	Minimal
•Health -	Minimal	•Reactivity -	Minimal

("Minimal" is the lowest designation permitted under present rules.)
Shipped as: Class 55

Physical Data:

Appearance (2 forms):

a. Blue gelatinous liquid emulsion, or
b. Dry blue granules (Concentrate form)

Specific Gravity: (H_2O=1.0) .95
Freezing Point (Gel)*: 32°
Melting Point: 125°
Thermal Stability: 500°+
pH: 9.3 - 9.5
Solubility: *Slightly soluble in fresh water.* Insoluble in salt water.

*Product is not harmed by freezing; however, TORKease Concentrate is recommended for use in areas of prolonged low temperatures.

Health Hazard Data:

Effects of Exposure: None
Leak or Spill Procedure: Flush with water.
Waste Disposal: No special precautions.
Inhalation: Avoid prolonged exposure in poorly ventilated areas.
Skin or Eye Contact: Avoid direct contact. May irritate eyes.
Protective Handling Equipment: None special.
Special Precautions: Use normal caution for handling caustic materials.
Delayed Effects: None established
Toxic Data: None established for humans. Approved by EPA under LC_{50} tests.

EMERGENCY AND FIRST AID DATA

•Inhalation Reaction: Remove subject to fresh air. Obtain medical attention.

•Skin & Eye Contact: Wash affected skin with soap and water. Wash eyes with large amounts of water for 15 minutes and seek medical attention.

•Ingestion: Product may be harmful if swallowed. Dilute immediately by drinking at least two glasses of water and seek medical attention.

Revised: January 1, 2008

MATERIAL SAFETY DATA SHEET

Sodium Hydroxide 50% Solution

MSDS Ref. No.: 1310-73-2-3
Date Approved: 01/26/2004
Revision No.: 4

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Sodium Hydroxide 50% Solution
SYNONYMS:	Caustic Soda Solution; Lye Solution; Sodium Hydrate Solution, White Caustic Solution
GENERAL USE:	pH Control
	This chemical is certified to ANSI/NSF Standard 60, Drinking Water Chemicals-Health Effects (as packaged in the original, unopened container). The maximum dosage level for this chemical is 200 mg/L

MANUFACTURER

FMC Wyoming Corporation
Alkali Chemicals Division
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

EMERGENCY TELEPHONE NUMBERS

(800) 424-9300 (CHEMTREC - U.S.)
(303) 595-9048 (Medical - Call Collect)

(307) 872-2452 (Plant - Green River, WY)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Water white liquid with no appreciable odor.
- Solution is corrosive to body tissues and metallic materials.
- Product may react violently with acids.

POTENTIAL HEALTH EFFECTS: Solution is corrosive and severely irritating to the eyes and skin.

MEDICAL CONDITIONS AGGRAVATED: Skin and lung disorders may be affected adversely by this material; an individual's specific medical condition and circumstances of exposure determine the likelihood of an adverse effect.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sodium Hydroxide	1310-73-2	50	215-185-5	C R35 /34; Xi R36/38
Water	7732-18-5	50	231-791-2	Not classified as hazardous

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

SKIN: Immediately flush with plenty of water while removing contaminated clothing and/or shoes, and thoroughly wash with soap and water. See a medical doctor immediately.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: Sodium hydroxide at this concentration is corrosive. Major burns to all surfaces may result. Prolonged dilution with water is required. Neutralization of eye burns is absolutely contraindicated; for skin, 2% acetic acid has been recommended, but washing with water is effective. Ingestion requires milk or water dilution, consideration of esphagoscopy and management for possible esophageal stricture.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Not applicable

FIRE / EXPLOSION HAZARDS: Non-combustible

FIRE FIGHTING PROCEDURES: Not applicable

FLAMMABLE LIMITS: Not applicable

HAZARDOUS COMBUSTION PRODUCTS: None

SENSITIVITY TO IMPACT: Not Sensitive

SENSITIVITY TO STATIC DISCHARGE: Not Sensitive

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Wear personal protective equipment as recommended in Section 8, "Exposure Controls/Personal Protection" below.

Contain spill using absorbent material and place in an approved container.

Dispose of according to the method outlined in Section 13, "Disposal Considerations" below.

7. HANDLING AND STORAGE

HANDLING: During handling of liquid, prevent contact with skin and eyes by using adequate personal protective equipment (see Section 8, "Exposure Controls/Personal Protection" below). If the release of airborne material is likely, exhaust ventilation and/or respiratory protection may also be necessary.

STORAGE: Store in closed containers away from sources of heat.

COMMENTS: Use only in systems, processes and procedures in which effective ventilation has been provided to meet established exposure limits.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Sodium Hydroxide	2 mg/m^3 (STEL) (Ceiling)	2 mg/m^3 (TWA) 2 mg/m^3 (PEL) (ceiling)	

ENGINEERING CONTROLS: Adequate engineering controls and/or personal protective equipment must be used to prevent contact with skin and eyes. Engineering controls and/or respirators may be necessary when the generation of airborne mists or fogs are possible.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Chemical goggles (and face shield if necessary) should be worn to prevent contact.

RESPIRATORY: When exposure above the established standard is likely, a respiratory protection program that complies with OSHA General Industry Standard 1910.134 should be implemented. Wear full face-piece respirators approved by MSHA / NIOSH if mists are expected.

PROTECTIVE CLOTHING: Rubber or vinyl apron. Rubber boots or rubber overshoes.

GLOVES: Impervious rubber or vinyl gloves with gauntlets. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

COMMENTS:

The information noted above provides general guidance for handling this product. Specific work environments and material handling practices will dictate the selection and use of personal protection equipment (PPE).

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9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	No appreciable odor
APPEARANCE:	Water white liquid
AUTOIGNITION TEMPERATURE:	Not applicable
BOILING POINT:	145 °C (293 °F)
COEFFICIENT OF OIL / WATER:	Not applicable
EVAPORATION RATE:	(butyl acetate = 1) Not available
FLASH POINT:	Non-combustible
FREEZING POINT:	4.4°C (40°F)
ODOR THRESHOLD:	Not applicable
OXIDIZING PROPERTIES:	Not available
PERCENT VOLATILE:	Not applicable
pH:	(as is) 13.7
SOLUBILITY IN WATER:	Infinite
SPECIFIC GRAVITY:	1.53 @ 15.5°C (60°F) (water = 1)
VAPOR DENSITY:	Not applicable
VAPOR PRESSURE:	6.33 mm Hg @ 40 °C (104 °F)

COMMENTS:

pH (1% solution): 13.0

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Contact with acids, flammable liquids, organic halogen compounds, nitro compounds, and amphoteric metals, such as aluminum, magnesium and zinc.
STABILITY:	Slightly reactive
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Acids, flammable liquids, organic halogen compounds, nitro compounds, and amphoteric metals, such as aluminum, magnesium and zinc.
HAZARDOUS DECOMPOSITION PRODUCTS:	None

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Severely irritating, corrosive (rabbit) [RTECS 1986, NIOSH 1975]

SKIN EFFECTS: Severely irritating, corrosive (rabbit) [RTECS 1986, PB 234-899 1974]

DERMAL LD_{50}: Corrosive

ORAL LD_{50}: 400 mg/kg (rabbit) LDLo [PB 234-899 1974]

INHALATION LC_{50}: Corrosive

TARGET ORGANS: Skin, eyes, mucous membranes

ACUTE EFFECTS FROM OVEREXPOSURE: Sodium hydroxide is corrosive and may produce severe eye, skin and respiratory tract irritation and upper gastrointestinal tract damage. Ingestion of concentrated solutions has caused death in animals and humans. [Gosselin, Smith & Hodge, 1984; PB 234-899 1974]

CHRONIC EFFECTS FROM OVEREXPOSURE: Sodium hydroxide may produce inflammation of the eyes, skin, and mucous membranes. Esophageal carcinoma at the site of a chronic lye stricture has been reported. [Gosselin , Smith & Hodge 1984]

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	Not Listed (ACGIH)

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Bluegill sunfish: 48-hour LC_{50} = 99 mg/L
Mosquito fish: 96-hour LC_{50} = 125 mg/L
Brown shrimp (Crangon crangon): 48-hour LC_{50} = 30 - 100 mg/L

The damaging effects are mostly a consequence of the increase in pH. The upper pH limit tolerated by most freshwater fish is 8.4; the pH must generally be greater than 9 before the aqueous environment becomes lethal for fully developed fish. Freshwater algae are destroyed above pH 8.5. Concentrations of 20 to 100 mg/L have been reported to kill salmon, trout, carp and crayfish. [Ref. , Environment Canada, Environmental Protection Service, Sodium Hydroxide Environmental and Technical Information for Problem Spills. June 1984]

CHEMICAL FATE INFORMATION: The pH effect of sodium hydroxide in water is naturally reduced by the absorption of atmospheric carbon dioxide. This reduction is also effected by dilution with water and by the natural acidity of a given water body. There is no degradation of sodium hydroxide in waters, only loss by absorption or through chemical neutralization.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal environmental rules and regulations. Check the pH of the waste to be disposed, if it is greater than 12.5 it must be handled as a RCRA hazardous waste.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Sodium Hydroxide Solution
PRIMARY HAZARD CLASS / DIVISION:	8 (Corrosive)
UN/NA NUMBER:	UN 1824
PACKING GROUP:	II

LABEL(S):	Corrosive
PLACARD(S):	Corrosive
MARKING(S):	Sodium Hydroxide Solution
ADDITIONAL INFORMATION:	Hazardous Substance/RQ = 1000 lbs. (454 kg) 49 STCC Number: 4935240

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME:	Sodium Hydroxide Solution

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

PROPER SHIPPING NAME:	Sodium Hydroxide Solution

OTHER INFORMATION:

Cool containers with water if exposed to fire or excessive heat conditions.

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Listed

Chemical Name	RQ	
Sodium Hydroxide	1,000 lb	Category C

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Listed

U.S. STATES

U.S. State Regulation:
New Jersey - Special Health Hazard
Massachusetts - Substance List

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number:	Not available
Hazard Classification / Division:	Class D, Div. 2, Subdiv. B (Toxic), E (Corrosive)
Ingredient Disclosure List:	Listed

EU EINECS NUMBERS:

sodium hydroxide 011-002-00-6

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16. OTHER INFORMATION

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

Sodium hydroxide:

EC Symbols:	C	(Corrosive)
	Xi	(Irritant)
EC Risk Phrases:	R35/34	(Causes severe burns / causes burns)
	R36/38	(Irritating to eyes and skin.)
EC Safety Phrases:	S1/2	(Keep locked up and out of reach of children.)
	S26	(In case of contact with eyes, rinse immediately with plenty of water and seek medical advice)
	S37	(Wear suitable gloves.)
	S39	(Wear eye/face protection.)
	S45	(In case of accident or if you feel unwell, seek medical advice immediately - show the label where possible.)

HMIS

Health	3
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	J

Protection = J (Safety goggles, gloves, apron & combination dust & vapor respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	3
Flammability	0
Reactivity	1
Special	None

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
New Format, as well as text changes and/or updates to one or more Sections of this MSDS.

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11. TOXICOLOGICAL INFORMATION (Continued)

prolonged or repeated exposures.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.
Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.
Teratogenicity: This product is not reported to cause teratogenic effects in humans.
Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin disorders can be aggravated by over-exposure to this mixture. Inhalation of this product may aggravate respiratory conditions.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) are not applicable to components of this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product are relatively stable in the environment. The following environmental data are available for the components of this product over 1 percent by weight:

No information found.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No information found.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No information found. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. The following aquatic toxicity data are available for the product and its components of this product over 1 percent by weight: Not available.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable.

BAG DISPOSAL: Insure all product remove from bag, do not reuse empty bag, place in a bag or other container and put in trash.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:	Not regulated.
HAZARD CLASS NUMBER and DESCRIPTION:	Not regulated.
UN IDENTIFICATION NUMBER:	Not regulated.
PACKING GROUP:	Not regulated.
DOT LABEL(S) REQUIRED:	Not regulated.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): Not regulated.

MARINE POLLUTANT: This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants. (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS NOT CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

MATERIAL SAFETY DATA SHEET

1. PRODUCT COMPANY AND IDENTIFICATION

Trade Name	**HT-THIN**
Generic Description	Humate/Polymer Blend
Manufacturer/Supplier	Grinding & Sizing Company, Inc.
Address	515 Industrial Boulevard Lufkin, TX 75904
Phone Number	936-634-7718
Emergency Number	1-800-324-0777

2. COMPOSITION/INFORMATION ON THE COMPONENTS

Material or Component	OSHA PEL	CAS Number	Percentage
Crystalline Silica	See below	14808-60-7	<1%

3. HAZARD IDENTIFICATION

Hazard Data Product may irritate eyes, skin, mucous membranes and upper respiratory system with overexposure. Prolonged inhalation (chronic) of dust may result in lung damage. Low concentrations of crystalline silica (SiO2) in the form of quart, cristobalite or tridymite may be present.

Health	1	
Flammability	1	
Reactivity	0	Ratings based on NPFA

The OSHA Permissible Expsoure Limits from Table Z-3 Mineral Dusts are:
Crystalline Silica

Quartz (Respirable)	10 mg/m3 % SiO2 + 2
Quartz (Total Dust)	30 mg/m3 % SiO2 + 2

Inhalation:
Breathing dust may cause irritation of the nose, throat and respiratory passages. Breathing dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also cause silicosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1 – carcinogenic to humans). The National Toxicology Program (NTP) classified respirable crystalline silica as "known to be a human carcinogen". The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Skin Contact:
May be irritating to the skin with prolonged contact.

Eye Contact:
May cause irritation to the eyes and could cause prolonged impairment of vision.

Ingestion:
Not anticipated route of exposure. If ingested may be irritating to mouth, throat and stomach.

Chronic Health Effects
See Inhalation subsection above.

Medical Conditions Aggravated by Exposure
Emphysema, asthma, bronchitis or other respiratory problems.

4. FIRST AID MEASURES

Inhalation:
Remove person to fresh air. Get medical attention for any breathing difficulty.

Skin Contact:
Wash exposed area with soap and water. Remove contaminated clothing and wash before reuse. Get medical advice if irritation develops.

Eye Contact:
Wash thoroughly with large amounts of running water for at least 15 minutes. Remove contact lenses if worn. Get medical advice if irritation develops.

Ingestion:
If large amounts were ingested, give water to drink, do not induce vomiting and get medical advice.

Advice to Physicians
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point	Not applicable
Flammable Limits	Not applicable

Fire Extinguishing Media Water, carbon dioxide, dry powder or foam
Unusual Fire and Explosion Hazard Airborne dust concentrations may create a dust explosion hazard.

6. ACCIDENTAL RELEASE MEASURES

Release or Spill
Avoid creating dusty conditions. Collect and place in suitable container for reuse or disposal.

Personal Precautions
Avoid breathing dust. Wear appropriate protective equipment.

Environmental Precautions
None known.

7. HANDLING AND STORAGE

Handling This product may contain crystalline silica. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear NIOSH approved respirator or equivalent when using this product. Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary.

Storage Store in a cool dry place with adequate ventilation. Keep away from oxidizing agents and ignitions sources, heat and open flames. Use good housekeeping in storage and work areas to prevent accumulation of dust.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Airborne Exposure Limits
See Section 3

Ventilation Requirements:
A system of local and/or general exhaust is recommended if handled in a confined area to control below recommended exposure levels.

Respiratory Protection
Use NIOSH approved nuisance dust respirator. Use NIOSH approved mechanical filter respirator when dust levels exceed applicable exposure limits.

Skin Protection
Wear long sleeved clothing and work gloves.

Eye Protection
Wear safety glasses with side shields. Maintain eye wash station in work area.

Other Protection Equipment/Clothing
As appropriate for work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Powder
Color	Dark Brown to Black
Odor	None
pH, 2% solution	8-9
Specific Gravity	1.2-1.5
Boiling Range/Point	Not applicable
Flash Point	Not applicable
Explosion Limits (%)	Not applicable
Solubility in Water	Appreciable
Vapor Density (Air=1)	Not applicable
Evaporation Rate (butyl acetate=1)	Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use and storage.

Materials to Avoid: Excessive heat, ignition sources, and strong oxidizers.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition: Sulfur oxides and carbon oxides.

11. TOXICOLOGICAL INFORMATION

No acute toxicity data is available for product or components**.** Crystalline silica is listed as carcinogen on NTP, IARC or OSHA.

12. ECOLOGICAL INFORMATION

No ecotoxicity data is available. This product is not expected to be toxic to aquatic organisms. This product is not expected to be readily biodegradable.

13. DISPOSAL

Dispose of material in accordance with all local, state, and federal regulations.

14. TRANSPORTATION INFORMATION

UN Proper Shipping Name	Not regulated
UN Label	None required
UN Identification Number	None

Hazardous Ingredients	None
Placards	None
Reportable Quantity	None

15. REGULATORY INFORMATION

TSCA Listed	Yes
SARA Title III Section 302	No
SARA Title III Section 311/312	Delayed/Chronic Health Hazard
SARA Title III Section 313	Does not contain chemical listed in 313 at or above deminimis concentration

16. OTHER INFORMATION

Abbreviations
N/A: Denotes no applicable information found or available
CAS#: Chemical Abstracts Service Number
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer

MSDS Date: 06/2006

Disclaimer: All information and recommendations concerning product is based on tests and data believed to be reliable; however it is the user's responsibility to determine the safety, toxicity and suitability for the user's own use of the product described herein. Since the actual use by others is beyond our control, no guarantee expressed or implied is made by Grinding & Sizing Company. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or desirable when particular conditions exist or because of applicable laws or government regulations.

Material Safety Data Sheet

Original Date: 02/28/2002
Revision Date: 06/12/2003

BASF CORPORATION
PERFORMANCE CHEMICALS
3000 CONTINENTAL DRIVE NORTH
MOUNT OLIVE, NJ 07828
(800) 832-HELP

EMERGENCY TELEPHONE: (800) 424-9300 CHEMTREC
(800) 832-HELP (BASF Hotline)
BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS.

SECTION 1 - PRODUCT INFORMATION

MYACIDE® GA25
Product ID: NCS S00118
Common Chemical Name:
GLUTARALDEHYDE
Synonyms:
PENTANEDIAL
Molecular Formula:
CHO(CH2)3CHO
Chemical Family: Dialdehydes
Molecular Wt.: 100.0

SECTION 2 - INGREDIENTS

Chemical Name:				CAS	Amount	
PENTANEDIAL				111-30-8	25.0	%
ACGIH TLV	CEIL	0.05	PPM			
WATER				7732-18-5	75.0	%
PEL/TLV NOT ESTABLISHED						
METHYL ALCOHOL				67-56-1	0.3	%
ACGIH TLV	SKIN					
	STEL	250	PPM			
	TWA	200	PPM			
OSHA PEL	TWA	200	PPM			

SECTION 3 - PHYSICAL PROPERTIES

Color: Yellow
Form/Appearance: Liquid
Odor: Characteristic

	Typical	Low/High	U.O.M.			
Specific Gravity:	1.06			@	20	DEG C
pH:	~ 3.6		SU			

	Typical	Low/High	Deg.	@	Pressure
Boiling Pt:	> 100		C	1	ATMOSPHERES
Freezing Pt:	~ -5		C	1	ATMOSPHERES

Decomp. Tmp: NOT AVAILABLE
Solubility in Water Description: Soluble

SECTION 4 - FIRE AND EXPLOSION DATA

	Typical	Low/High	Deg.	Method
Flash Point:	NOT AVAILABLE			
Autoignition:	> 275		C	DIN 51794

Extinguishing Media:
Use water, dry extinguishing media, carbon dioxide (CO2) or foam.

Fire Fighting Procedures:
Firefighters should be equipped with self-contained breathing apparatus and turn out gear.

Unusual Hazards:
Not applicable.

SECTION 5 - HEALTH EFFECTS

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Toxicology Test Data:
Rat, Oral LD50 - 320 MG/KG
Very Toxic
Rabbit, Dermal LD50 - > 2000 MG/KG
Slightly Toxic
Rabbit, Primary Skin Irritation -
Corrosive
Rabbit, Eye Irritation - DRAIZE: MAX=110
Irritating
Bluegill Sunfish, static 96 hr LC50 - 37.6 MG/L
Slightly Toxic
Rabbit, Dermal LD50 - > 2000 MG/KG
Slightly Toxic
Rat, 4 hr Inhalation LC50 - 0.28 - 0.39 MG/KG
Extremely Toxic
Rat, 1 hr Inhalation LC50 -
No mortality
As the product corrodes the skin, it can be expected to have a similar effect on the eyes also.

Acute Overexposure Effects:
Eye and skin contact with glutaraldehyde causes severe irritation; burns and permanent injury may result. Prolonged or repeated skin contact with glutaraldehyde may result in dermatitis.
Inhalation of the mists causes irritation of the respiratory tract and inflammation of the lungs may result. Ingestion may cause moderate to severe gastric irritation including nausea, vomiting and pain. Ulceration or perforation of the gastrointestinal tract may occur.
Glutaraldehyde is a strong irritant to the skin, eyes and respiratory tract. Direct contact with the concentrated liquid may produce severe irritation to the skin and eyes. Repeated dermal contact may produce sensitization. Allergic dermatitis has been known to occur

SECTION 5 - HEALTH EFFECTS (cont)

in humans.

Chronic Overexposure Effects:

Overexposures have been known to produce liver damage in animal studies. Fetotoxicity and embryotoxicity in the presence of maternal toxicity has been shown to occur in rabbits at a high dose of 45 mg/kg.

First Aid Procedures - Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Get immediate medical attention.

First Aid Procedures - Eyes:

Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.

First Aid Procedures - Ingestion:

If swallowed, dilute with water. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get medical attention.

First Aid Procedures - Inhalation:

Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

First Aid Procedures - Notes to Physicians:

Contact may aggravate pulmonary disorders.

First Aid Procedures - Aggravated Medical Conditions:

No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to the effects of overexposure section for effects (if any) observed in animals.

First Aid Procedures - Special Precautions:

Not applicable.

SECTION 6 - REACTIVITY DATA

Stability Data:

Stable.

Incompatability:

Acids and bases.

Conditions/Hazards to Avoid:

See Reactivity - Incompatibility section.

Hazardous Decomposition/Polymerization:

Hazardous decomposition products: CO and CO2.

Polymerization: Does not occur.

Corrosive Properties:

Corrosive.

Oxidizer Properties:

Not an oxidizer

SECTION 7 - PERSONAL PROTECTION

Clothing:

Gloves, coveralls, apron, and boots as necessary to prevent contact.

Eyes:

Chemical goggles; also wear a face shield if splashing hazard exists.

Respiration:

If vapors or mists are generated, wear a NIOSH/MSHA approved organic

SECTION 7 - PERSONAL PROTECTION (cont)

vapor/mist respirator or an air-supplied respirator as appropriate.

Ventilation:

Use local exhaust to control vapors or mists to the PEL.

Explosion Proofing:

See Section 4 - Fire and Explosion Data.

Other Personal Protection Data:

Eyewash fountains and safety showers must be easily accessible.
Shower after handling.
Glutaraldehyde should not be used as a spray.
Recommended glove material: Butyl rubber or Nitrile.

SECTION 8 - SPILL-LEAK/ENVIRONMENTAL

General:

Spills should be contained, solidified and placed in suitable containers for disposal in a RCRA licensed facility. This material is RCRA hazardous due to its properties.

Waste Disposal:

Incinerate in a licensed facility. Do not discharge into waterways or sewer systems.

Container Disposal:

Dispose of in a licensed facility. Recommend crushing or other means to prevent unauthorized reuse.

Environmental Toxicity Test Data:

Golden orfe, Static 48 hr LC50 - 10-100 MG/L
Slightly Toxic
Elimination (OECD Test 302 B) - > 70 %
Easy to eliminate
Rainbow Trout, static 96 hr LC50 - 42.1 MG/L
Slightly Toxic
Elimination (OECD 301A) - > 90 PERCENT
Readily Biodegradable
Golden Orfe, static 96 hr LC50 - 10.5 MG/L
Slightly Toxic
Fathead Minnow, Static 96 hr LC50 - 39 MG/L
Slightly Toxic
Daphnia magna, 48 hr static EC50 - 29.7 MG/L
Slightly Toxic
Acute Aquatic Toxicity, 96 hr LC50 - 0.84 MG/L
Slightly Toxic
Bacterial Toxicity, EC10 (17 hr) - 13.3 MG/L
TEST RATING NOT FOUND
Chemical Oxygen Demand - 1,385 MG/G
TEST RATING NOT FOUND
Biological Oxygen Demand, 5 day - 1,385 MG/G
TEST RATING NOT FOUND
Acute algal toxicity, 72 hour EC50 - 0.75 MG/L
Highly Toxic

SECTION 9 - STORAGE AND HANDLING

General:

Protect from freezing.

Keep containers closed.

Store material at less than 100F. Avoid sources of ignition.

Other Storage and Handling Data:

Consult other sections of this MSDS for information on reactivity and flammability.

The prefferable maximum storage temperature is 80F for long term.

SECTION 10 - REGULATORY INFORMATION

RCRA Haz. Waste No .: D002

CERCLA: NO Reportable Qty.: (If YES)

THIS PRODUCT IS NOT FIFRA-APPROVED FOR BIODIDAL APPLICATIONS EXCEPT FOR LIMITED ENCLOSED SYSTEMS. PLEASE CONTACT BASF FOR FURTHER INFORMATION.

Hazard Ratings:

	Health:	Fire:	Reactivity:	Special:
HMIS	3*	1	0	NA

This product is hazardous or contains components which are hazardous according to the OSHA Hazard Communication Standard.

SECTION 11 - TRANSPORTATION INFORMATION

DOT Proper Shipping Name:

SEE BELOW

DOT Technical Name:

SEE BELOW

DOT Primary Hazard Class:

SEE BELOW

DOT Secondary Hazard Class:

SEE BELOW

DOT Label Required:

SEE BELOW

DOT Placard Required:

SEE BELOW

DOT Poison Constituent:

SEE BELOW

BASF Commodity Codes: UN/NA Code: E/R Guide:

Bill of Lading Description:

CORROSIVE LIQUID, ACIDIC, ORGANIC, NOS, (GLUTARALDEHYDE), 8, UN3265, PGIII.

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END OF DATA SHEET

MATERIAL SAFETY DATA SHEET
SODA ASH

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: SODA ASH

CHEMICAL CLASS: Sodium carbonate

APPLICATIONS: Oil well drilling fluid additive. Calcium precipitation

EMERGENCY TELEPHONE: 281-561-1600

SUPPLIER: Supplied by a Business Unit of
M-I L.L.C.
P.O. Box 42842, Houston, Texas 77242-2842
See cover sheet for local supplier.

TELEPHONE: 281-561-1509
FAX: 281-561-7240

CONTACT PERSON: Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Sodium carbonate	497-19-8	100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

amber white powder. Slippery when wet. A nuisance dust.

ACUTE EFFECTS:
HEALTH HAZARDS, GENERAL:

Particulates may cause mechanical irritation to the eyes, nose, throat and lungs. Particulate inhalation may lead to pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma. Dermatitis and asthma may result from short contact periods.

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:
CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:
Inhalation. Skin and/or eye contact.

TARGET ORGANS:
Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL: Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION: Drink a couple of glasses water or milk. Do not give victim anything to drink of he is unconscious. Get medical attention.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

AUTO IGNITION TEMP. (°F): N/D
FLAMMABILITY LIMIT - LOWER(%): N/D
FLAMMABILITY LIMIT - UPPER(%): N/D

EXTINGUISHING MEDIA:
Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:
No specific fire fighting procedure given.

UNUSUAL FIRE & EXPLOSION HAZARDS:
No unusual fire or explosion hazards noted.

HAZARDOUS COMBUSTION PRODUCTS:
Irritating gases/vapors/fumes. Oxides of: Carbon. and Sodium.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:
Carefully sweep up and put in closed containers. Avoid making dust. Do not contaminate drainage or waterways. Repackage or recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:
Avoid handling causing generation of dust. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed. Provide good ventilation. Mechanical ventilation or local exhaust ventilation is required.

STORAGE PRECAUTIONS:
Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

		OSHA PEL:		ACGIH TLV:		OTHER:		
INGREDIENT NAME:	**CAS No.:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**UNITS:**
Sodium carbonate	497-19-8	5		3				mg/m3 resp.dust

INGREDIENT COMMENTS:
Exposure limits are for Particulates Not Otherwise Classified (PNOC).

PROTECTIVE EQUIPMENT:

ENGINEERING CONTROLS:
Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: Use at least a NIOSH-approved N95 half-mask disposable or reuseable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.

PROTECTIVE GLOVES:
Use suitable protective gloves if risk of skin contact.

EYE PROTECTION:
Wear dust resistant safety goggles where there is danger of eye contact.

PROTECTIVE CLOTHING:
Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:
Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:	Powder, dust.	
COLOR:	White.	
ODOR:	Odorless or no characteristic odor.	
SOLUBILITY DESCRIPTION:	Soluble in water.	
MELT./FREEZ. POINT (°F, interval):	1564	
DENSITY/SPECIFIC GRAVITY (g/ml):	2.509	TEMPERATURE (°F): 68
BULK DENSITY:	48 lb/ft3; 769 kg/m3	
VAPOR DENSITY (air=1):	N/A	
VAPOR PRESSURE:	N/A	TEMPERATURE (°F):
pH-VALUE, DILUTED SOLUTION:	11.4	CONCENTRATION (%,M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Reacts with hydrated lime to form sodium hydroxide.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

Component: **Sodium carbonate**

TOXICOLOGICAL DATA:

Corrosive effects.	Eye irritation test.	24 hours.	Eye.	Rabbit.	100 mg - Moderate Irritation
Corrosive effects.		24 hours.	Skin.	Rabbit.	500 mg - Mild Irritaiton

TOXIC DOSE - LD 50: 4090 mg/kg (oral rat)
TOXIC CONC. - LC 50: 1200 mg/m3/2h (inh-mus)

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:
This product is approved for use under the U.S. Environmental Protection Agency (EPA) Region IX (California) General NPDES Permit which regulates offshore discharges of drilling fluids. Contact M-I's Environmental Affairs Department for more information.
This product passes the mysid shrimp toxicity test required by the U.S. Environmental Protection Agency (EPA) Region VI (Gulf of Mexico) NPDES Permit, which regulates offshore discharge of drilling fluids, when tested in a standard drilling fluid. Contact M-I's Environmental Affairs Department for more information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc, may render the resulting materials hazardous.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

PRODUCT RQ: N/A

U.S. DOT:
U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

SEA TRANSPORT:
IMDG CLASS: Not regulated.

AIR TRANSPORT:
ICAO CLASS: Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Sodium carbonate	497-19-8	Yes	No	No	No	Yes

US FEDERAL REGULATIONS:
WASTE CLASSIFICATION: Not a hazardous waste by U.S. RCRA criteria. See Section 13.

REGULATORY STATUS: This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA 311 Categories:
1: Immediate (Acute) Health Effects.

The components of this product are listed on or are exempt from the following international chemical registries:
TSCA (U.S.)
EINECS (Europe)
DSL (Canada)

STATE REGULATIONS:
STATE REGULATORY STATUS: This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):.

None.

PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity, and for which warnings are now required.

CANADIAN REGULATIONS:
LABELS FOR SUPPLY:

REGULATORY STATUS: This Material Safety Data Sheet has been prepared in compilance with the Controled Product Regulations.

Canadian WHMIS Classification: D2B - Other Toxic Effects: Toxic Material

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX:	1 Slight Hazard
FLAMMABILITY:	1 Slight Hazard
REACTIVITY:	0 Minimal Hazard
NPCA HMIS PERS. PROTECT. INDEX:	E - Safety Glasses, Gloves, Dust Respirator
USER NOTES:	N/A = Not applicable N/D = Not determined
INFORMATION SOURCES:	OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants. ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition). Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997). Product information provided by the commercial vendor(s).
PREPARED BY:	Sam Hoskin/bb
REVISION No./Repl. MSDS of:	2/January 27, 1998
MSDS STATUS:	Approved.
DATE:	June 16, 2000

DISCLAIMER:
MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditiions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

MATERIAL SAFETY DATA SHEET
SODIUM BICARBONATE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME:	SODIUM BICARBONATE
CHEMICAL CLASS:	Sodium bicarbonate
APPLICATIONS:	Oil well drilling fluid additive. Calcium precipitation
EMERGENCY TELEPHONE:	281-561-1600
SUPPLIER:	Supplied by a Business Unit of M-I L.L.C. P.O. Box 42842, Houston, Texas 77242-2842 See cover sheet for local supplier.
TELEPHONE:	281-561-1509
FAX:	281-561-7240
CONTACT PERSON:	Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Sodium bicarbonate	144-55-8	100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an white powder. A nuisance dust. Keep out of sewers and waterways.

ACUTE EFFECTS:
HEALTH HAZARDS, GENERAL:

Particulates may cause mechanical irritation to the eyes, nose, throat and lungs. Particulate inhalation may lead to pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma. Dermatitis and asthma may result from short contact periods.

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:
CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:
Inhalation. Skin and/or eye contact.

TARGET ORGANS:
Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL: Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION: Drink a couple of glasses water or milk. Do not give victim anything to drink of he is unconscious. Get medical attention.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

AUTO IGNITION TEMP. (°F): N/D
FLAMMABILITY LIMIT - LOWER(%): N/D
FLAMMABILITY LIMIT - UPPER(%): N/D

EXTINGUISHING MEDIA:
Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:
No specific fire fighting procedure given.

UNUSUAL FIRE & EXPLOSION HAZARDS:
No unusual fire or explosion hazards noted.

HAZARDOUS COMBUSTION PRODUCTS:
Irritating gases/vapors/fumes. Oxides of: Carbon.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:
Avoid generating and spreading of dust. Shovel into dry containers. Cover and move the containers. Flush the area with water. Do not contaminate drainage or waterways. Repackage or recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:
Avoid handling causing generation of dust. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed. Provide good ventilation. Mechanical ventilation or local exhaust ventilation is required.

STORAGE PRECAUTIONS:
Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

		OSHA PEL:		ACGIH TLV:		OTHER:		
INGREDIENT NAME:	**CAS No.:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**TWA:**	**STEL:**	**UNITS:**
Sodium bicarbonate	144-55-8	5		3				mg/m3 resp.dust

INGREDIENT COMMENTS:
*Exposure limits are for Particulates Not Otherwise Classified (PNOC).

PROTECTIVE EQUIPMENT:

ENGINEERING CONTROLS:
Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: Use at least a NIOSH-approved N95 half-mask disposable or reuseable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.

PROTECTIVE GLOVES:
Use suitable protective gloves if risk of skin contact.

EYE PROTECTION:
Wear dust resistant safety goggles where there is danger of eye contact.

PROTECTIVE CLOTHING:
Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:
Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:	Powder, dust.	
COLOR:	White.	
ODOR:	Odorless or no characteristic odor.	
SOLUBILITY DESCRIPTION:	Soluble in water.	
SOLUBILITY VALUE (g/100g H2O 68°F):	7	
MELT./FREEZ. POINT (°F, interval):	518	
DENSITY/SPECIFIC GRAVITY (g/ml):	2.16	TEMPERATURE (°F): 68
BULK DENSITY:	801-1089 kg/m3	
VAPOR DENSITY (air=1):	N/A	
VAPOR PRESSURE:	N/A	TEMPERATURE (°F):
pH-VALUE, DILUTED SOLUTION:	8.3	CONCENTRATION (%,M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
N/A.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

TOXIC DOSE - LD 50: 4220

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:
This product passes the mysid shrimp toxicity test required by the U.S. Environmental Protection Agency (EPA) Region VI (Gulf of Mexico) NPDES Permit, which regulates offshore discharge of drilling fluids, when tested in a standard drilling fluid. Contact M-I's Environmental Affairs Department for more information.
This product is approved for use under the U.S. Environmental Protection Agency (EPA) Region IX (California) General NPDES Permit which regulates offshore discharges of drilling fluids. Contact M-I's Environmental Affairs Department for more information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc, may render the resulting materials hazardous.
Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

GENERAL: RQ = N/A

U.S. DOT:

U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

SEA TRANSPORT:
IMDG CLASS: Not regulated.

AIR TRANSPORT:
ICAO CLASS: Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Sodium bicarbonate	144-55-8	Yes	No	No	No	Yes

US FEDERAL REGULATIONS:
WASTE CLASSIFICATION: Not a hazardous waste by U.S. RCRA criteria. See Section 13.

REGULATORY STATUS: This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.
SARA 311 Categories:
1: Immediate (Acute) Health Effects.

The components of this product are listed on or are exempt from the following international chemical registries:
TSCA (U.S.)
DSL (Canada)

STATE REGULATIONS:
STATE REGULATORY STATUS: This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):.

None.

CANADIAN REGULATIONS:
REGULATORY STATUS: This Material Safety Data Sheet has been prepared in compilance with the Controled Product Regulations.

Canadian WHMIS Classification: Not a Controlled Product.

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX: 1 Slight Hazard
FLAMMABILITY: 0 Minimal Hazard
REACTIVITY: 0 Minimal Hazard
NPCA HMIS PERS. PROTECT. INDEX: E - Safety Glasses, Gloves, Dust Respirator

USER NOTES: N/A = Not applicable N/D = Not determined

INFORMATION SOURCES:

OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants.

ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition).

Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997).
Product information provided by the commercial vendor(s).

PREPARED BY: Sam Hoskin

REVISION No./Repl. MSDS of: 2/June 3, 1998

MSDS STATUS: Approved.

DATE: May 30, 2001

DISCLAIMER:

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditiions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

Material Safety Data Sheet

May be used to comply with OSHA'S Hazard Communication Standard, 29CRF1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Admin.
(Non-Mandatory Form)

Section I

IDENTITY: (As used on label and list) **WALNUT SHELL**

Manufacturer's Name:	Eco-Shell, Inc.
Emergency Telephone Number:	(530) 824-8794 or (530) 529-1585
Address:	5230 Grange Road, Corning, CA 96021
Telephone for Information:	(530) 824-8794

Section II – Hazardous Ingredients/Identity Information

The chemicals listed under section II of the MSDS for this product is not reportable under SARA 313. If the product is reportable under this regulation, it will be noted in section II.

Section III

Boiling Point	N/A	Specific Gravity (H20-1)	1.2
Vapor Pressure (MM Hg)	N/A	Melting Point	N/A
Vapor Density (Air – 1)	N/A	Evaporation	N/A

Solubility in water:	Not water soluble
Odor and appearance:	No odor – Light brown in color
Flash Point:	380°F
Flammable limits:	470°F
Media used in extinguishing:	Water
Special fire fighting procedure:	None

Fire and Explosion Hazards:

If improperly handled, stored and/or exposed to and ignition source, this material may burn. High concentrations of dust in air can explode if sufficient temperature and ignition source occurs. Proper grounding of equipment is necessary to eliminate static electricity.

Section IV – Health Hazard Data

No Acute Hazards Known

Section V – Reactivity Data

Stability:	Stable
Incompatibility (Materials to avoid)	None
Hazardous Polymerization:	None

(6/20/06)

Section VI – Health Hazards (Acute and Chronic)

None Known

Section VII – Precautions for safe handling and use

Steps to be taken if material is released or spilled: Sweep, Shovel up, or Vacuum
Waste Disposal Methods: No special requirements
Precautions to be take in handling and storing: None
Other Precautions: None

Section VIII – Control Measures

Ventilation: Local Exhaust Nuisance Dust Levels
Protective clothing, gloves, or equipment: Not required
Eye Protection: Not required – Safety goggles recommended

Ground English Walnut Shell

PROPERTIES:

Dual Screen Aggregates have the following characteristics

SPECIFIC GRAVITY	1.2 – 1.4
pH VALUE AT 25ºC (IN WATER)	4-6
FREE MOISTURE (80ºC FOR 15HRS)	3-9%
FLASH POINT (CLOSED CUP)	380°
HARDNESS -VICKERS NO	25-30
MOHS SCALE	3-4
DRY PACKING DENSITY (LBS PER CU. FT.)	22-74

GSA **Specification**:AA-1722, Type 2
Military Specification: MIL-G-5634 Type 3

CHEMICAL ANALYSIS

Nitrogen	0.10
Cellulose	40/60
Lignin	20/30
Toluene Solubility	0.5/1.0
Methoxyl	6.5
Chlorine	0.10
Ash	1.5
Cutin	1.0

For more information visit our website at: www.ecoshell.com

AMBER CHEMICAL INCORPORATED

FACSIMILE TRANSMITTAL SHEET

TO: John Tuttle

FROM: Becki Andrade

COMPANY: Sinclair Services

DATE: 1/3/06

FAX NUMBER: 6035846058

TOTAL NO. OF PAGES INCLUDING COVER: 6

PHONE NUMBER:

RE: Amber 1200

CC:

☐ URGENT ☒ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

lbs. per gallon : 8.3

(Specific gravity: ~1.0 x 8.33)

Container size : 275 Gallon tote

(one-way tote)

[1] WARNING/ CONFIDENTIAL: This message is intended only for use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable laws. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the address below via the U.S. Postal Service. Thank You!

5201 BOYLAN STREET – BAKERSFIELD, CA 93308 – OFFICE 661 325-2072 – FAX 661-325-2285

AMBER
CHEMICAL
INCORPORATED

MSDS No: 451
Date: 12-17-2002

MATERIAL SAFETY DATA

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: AMBER 1200 LIQUID DRILLING MUD ADDITIVE

SYNONYMS: Anionic polyacrylamide in water-in-oil emulsion

CHEMICAL FAMILY: Anionic polymer

MOLECULAR FORMULA: Polymer

MOLECULAR WGT: Polymer

AMBER CHEMICAL, INC., 5201 BOYLAN ST., Bakersfield, CA 93308
(661) 325-2072

FOR CHEMICAL EMERGENCY, SPILL,LEAK,FIRE,EXPOSURE,ACCIDENT CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

COMPONENT	CAS. NO.	%	TWA/CEILING	REFERENCE
Petroleum distillate hydrotreated light	064742-47-8	~24	400 ppm	OSHA

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR: White, viscous, opaque liquid; slight hydrocarbon odor

STATEMENTS OF HAZARD:
WARNING! CAUSES SKIN IRRITATION
MAY CAUSE EYE IRRITATION

POTENTIAL HEALTH EFFECTS

EFFECTS OF OVEREXPOSURE:
The acute oral (rat) and acute dermal (rabbit) LD50 values are both >10 ml/kg. Minimal eye irritation was produced in rabbit testing. When this product was tested in rabbits for skin irritation under occlusive conditions, as would be produced if the product was spilled into boots, irreversible skin damage was produced. When the product was tested under nonocclusive conditions with 24 hours of skin contact, as would occur when the product was spilled on clothing, some eschar formation was observed but the overall skin irritation score was lower (2.2 moderately irritating)
Refer to Section 11 for toxicology information on the OSHA regulated components of this product.

4. FIRST AID MEASURES

In case of skin contact, remove contaminated clothing without delay. Flush skin thoroughly with water. Do not reuse clothing without laundering.
In case of eye contact, immediately irrigate with plenty of water for 15 minutes.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: >200 F; 93 C
METHOD: Closed Cup

FLAMMABLE LIMITS
(% BY VOL): Not available

AUTOIGNITION TEMP: Not available

DECOMPOSITION TEMP: Not available

EXTINGUISHING MEDIA AND FIRE FIGHTING INSTRUCTIONS

Use water spray, carbon dioxide or dry chemical to extinguish fires. Use water to keep containers cool. Wear self-contained, positive pressure breathing apparatus and full fire-fighting protective clothing. See Section 8 (Exposure Controls/Personal Protection) for special protective clothing.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Where exposure level is not known, wear NIOSH approved, positive pressure, self-contained respirator. Where exposure level is known, wear NIOSH approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impervious boots. Spills of this product are very slippery. Spilled material should be absorbed onto an inert material and scooped up. The area should be thoroughly flushed with water and scrubbed to remove residue. If slipperiness remains apply more dry-sweeping compound.

7. HANDLING AND STORAGE

Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

Prevent material from coming in contact with common metals. To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. OSHA regulations (29 CFR 106.a.14), required that the flashpoint of materials of this type be determined by the Pensky-Martens Closed Tester method. The test for this product indicates it has a flashpoint greater than 200 F (93.3 C). Another method indicates a potential for flash at approximately 154 F (67.8 C); therefore, caution should be exercised in storage and handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands with soap and water. Avoid skin contact. Protective clothing such as impervious gloves, apron, workpants, long sleeve work shirt, or disposable coveralls are recommended to prevent skin contact. For operations where eye or face contact can occur, wear eye protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure. Where exposures are below the Permissible Exposure Limit (PEL), no respiratory protection is required. Where exposures exceed the PEL, use respirator approved by NIOSH for the material and level of exposure. See "GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION" (NIOSH).

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: White, viscous, opaque liquid; slight hydrocarbon odor

BOILING POINT: Aqueous phase ~100 C; Oil phase ~175 C

MELTING POINT: Not applicable

VAPOR PRESSURE: Similar to water

SPECIFIC GRAVITY: ~1.0

VAPOR DENSITY: Not available

% VOLATILE (BY WT): 62-66

pH: 6-8; (upon dilution in water)

SATURATION IN AIR (% BY VOL): Not available

EVAPORATION RATE: Not available

SOLUBILITY IN WATER: Limited by viscosity

10. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: None known

POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: None known

INCOMPATIBLE MATERIALS: Strong oxidizing agents. This material reacts slowly with iron, copper and aluminum, resulting in corrosion and product degradation.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition or combustion may produce carbon monoxide, carbon dioxide, ammonia and/or oxides of nitrogen.

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION. Toxicological information on the OSHA regulated components of this product is as follows:

Acute overexposure to petroleum distillate vapors may cause eye and throat irritation. On direct skin contact, petroleum distillate may produce a severe skin irritation. Prolonged repeated exposure to petroleum distillate vapor may cause central nervous system damage as well as heart and blood disorders. The oral LD50 in the rat for various distillates ranges from 4.5 to greater than 25 ml/kg, and the inhalation LC50 in rats is about 15000 ppm. Aspiration of petroleum distillate may cause chemical pneumonitis. Overexposure to vapor may cause dizziness, drowsiness, headache, and nausea.

12. ECOLOGICAL INFORMATION

LC50

TROUT 96 HOUR: 120 mg/L

OCTANOL/H_2O PARTITION COEF.: Not available

13. DISPOSAL CONSIDERATIONS

Disposal must be made in accordance with applicable governmental regulations.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

	D.O.T. SHIPPING INFORMATION	**IMO SHIPPING INFORMATION**
SHIPPING NAME:	NOT APPLICABLE/NOT REGULATED	NOT APPLICABLE/NOT REGULATED
HAZARD CLASS/ PACKING GROUP:	Not Applicable	Not Applicable
UN NUMBER:	Not Applicable	Not Applicable
IMDG PAGE:	Not Applicable	Not Applicable

D.O.T. HAZARDOUS SUBSTANCES:	(PRODUCT REPORTABLE QUANTITY) Not Applicable	Not Applicable
TRANSPORT LABEL REQUIRED:	None Required	None Required

	ICAO/IATA	TRANSPORT CANADA
SHIPPING NAME:	NOT APPLICABLE/NOT REGULATED	NOT APPLICABLE/NOT REGULATED
HAZARD CLASS:	Not Applicable	Not Applicable
SUBSIDIARY CLASS:	Not Applicable	Not Applicable
UN / ID NUMBER:	Not Applicable	Not Applicable
PACKING GROUP:	Not Applicable	Not Applicable
TRANSPORT LABEL REQUIRED:	None Required	None Required
PACKING INSTR:	PASSENGER Not Applicable CARGO Not Applicable	Not Applicable
MAX NET QTY:	PASSENGER Not Applicable CARGO Not Applicable	Not Applicable

ADDITIONAL TRANSPORT INFORMATION

TECHNICAL NAME (N.O.S.): Not Applicable

15. REGULATORY INFORMATION

INVENTORY INFORMATION

US TSCA:	This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C.
CANADA DSL:	Components of this product have been reported to Environment Canada in accordance with subsection 25 of the Canadian Environmental Protection Act and are included on the Domestic Substances List.
EEC EINECS:	Product was not required to be included in the European Inventory of Existing Chemical Substances (EINECS) since the product (or its components) was regarded to be a polymer by the EEC-Commission. This product fulfils the requirements of Council Directive 67/548/EEC, amended 79/831/EEC.

OTHER ENVIRONMENTAL INFORMATION

The following components are defined as toxic chemicals subject to reporting requirements of Section 313 of Title III and of 40 CFR 372 or subject to other EPA regulations.

COMPONENT	CAS. NO.	%	TPQ(lbs)	RQ(lbs)	S313	RCRA	TSCA 12B
This product does not contain any components regulated under these sections of the EPA							

PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA				
ACUTE (Y)	CHRONIC (N)	FIRE (N)	REACTIVE (N)	PRESSURE (N)

16. OTHER INFORMATION

NFPA HAZARD RATING (National Fire Protection Association)

Fire	FIRE: Materials that must be preheated before ignition can occur.
1	HEALTH: Materials which on intense or continued exposure could cause temporary
Health 2 0 Reactivity	incapacitation or possible residual injury unless prompt medical treatment is given
—	REACTIVITY: Materials which in themselves are normally stable, even under fire
Special	exposure conditions, and which are not reactive with water.

REASON FOR ISSUE:

Revised

This information is given without any warranty or representation. We do not assume any legal responsibility for same, nor do we give permission, inducement, or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation and verification. Before using any product, read its label.

MATERIAL SAFETY DATA SHEET
DEFOAM-X

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME:	DEFOAM-X
CHEMICAL CLASS:	Surfactant.
APPLICATIONS:	Oil well drilling fluid additive. Defoamer.
EMERGENCY TELEPHONE:	281-561-1600
SUPPLIER:	Supplied by a Business Unit of M-I L.L.C. P.O. Box 42842, Houston, Texas 77242-2842 See cover sheet for local supplier.
TELEPHONE:	281-561-1509
FAX:	281-561-7240
CONTACT PERSON:	Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Glycol Blend		60-100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an white liquid. Dike and contain spills. Keep out of sewers and waterways.

ACUTE EFFECTS:

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:

CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:

Inhalation. Skin and/or eye contact.

TARGET ORGANS:
Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL: Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION: Drink a couple of glasses water or milk. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. Get medical attention.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F):	>399	METHOD: PM Closed cup.
AUTO IGNITION TEMP. (°F):	N/D	
FLAMMABILITY LIMIT - LOWER(%):	N/D	
FLAMMABILITY LIMIT - UPPER(%):	N/D	

EXTINGUISHING MEDIA:
Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:
Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (including fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

UNUSUAL FIRE & EXPLOSION HAZARDS:
No unusual fire or explosion hazards noted.

HAZARDOUS COMBUSTION PRODUCTS:
Irritating gases/vapors/fumes. Oxides of: Carbon.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:
Absorb in vermiculite, dry sand or earth and place into containers. Rinse area with water. Dike far ahead of larger spills for later disposal. Do not contaminate drainage or waterways.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:
Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed.

STORAGE PRECAUTIONS:
Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

INGREDIENT NAME:	CAS No.:	OSHA PEL: TWA:	OSHA PEL: STEL:	ACGIH TLV: TWA:	ACGIH TLV: STEL:	OTHER: TWA:	OTHER: STEL:	UNITS:
Glycol Blend								No std.

INGREDIENT COMMENTS:
This product is regulated as nuisance particulates (dust/mist/aerosol). TLV: 3 mg/m3 resp. dust; PEL: 5 mg/m3 resp. dust.

PROTECTIVE EQUIPMENT:

ENGINEERING CONTROLS:
Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: If exposed to particulates/aerosols:
Use at least a NIOSH-approved N95 half-mask disposable or reuseable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.
If exposed to organic vapors:
Use a NIOSH/MSHA-approved organic vapor respirator. CCROV: CCR with organic vapor cartridge.

PROTECTIVE GLOVES:
Chemical resistant gloves required for prolonged or repeated contact. Use protective gloves made of: Impermeable material. Such as, Neoprene, nitrile, polyethylene or PVC.

EYE PROTECTION:
Wear chemical safety goggles where eye exposure is reasonably probable.

PROTECTIVE CLOTHING:
Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:
Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:	Liquid.	
COLOR:	White.	
ODOR:	Mild (or faint).	
SOLUBILITY DESCRIPTION:	Insoluble in water.	
DENSITY/SPECIFIC GRAVITY (g/ml):	0.9 - 1.0	TEMPERATURE (°F): 68
VAPOR DENSITY (air=1):	N/D	
VAPOR PRESSURE:	<1.0 mmHg	TEMPERATURE (°F): 68
EVAPORATION RATE:	N/D	REFERENCE:
pH-VALUE, DILUTED SOLUTION:	5-8	CONCENTRATION (%,M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Avoid heat.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

TOXIC DOSE - LD 50: >5000 mg/kg (oral rat)

TOXICOLOGICAL INFORMATION:
No toxicological data is available for this product. Toxicological data given above is for a major component.

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:
This product is approved for use under the U.S. Environmental Protection Agency (EPA) Region IX (California) General NPDES Permit which regulates offshore discharges of drilling fluids. Contact M-I's Environmental Affairs Department for more information.
This product passes the mysid shrimp toxicity test required by the U.S. Environmental Protection Agency (EPA) Region VI (Gulf of Mexico) NPDES Permit, which regulates offshore discharge of drilling fluids, when tested in a standard drilling fluid. Contact M-I's Environmental Affairs Department for more information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc, may render the resulting materials hazardous.
Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

U.S. DOT:
U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

SEA TRANSPORT:
IMDG CLASS: Not regulated.

AIR TRANSPORT:
ICAO CLASS: Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Glycol Blend		Yes	No	No	No	Yes

US FEDERAL REGULATIONS:
WASTE CLASSIFICATION: Not a hazardous waste by U.S. RCRA criteria. See Section 13.

REGULATORY STATUS: This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA 311 Categories:
1: Immediate (Acute) Health Effects.

The components of this product are listed on or are exempt from the following international chemical registries:
TSCA (U.S.)
EINECS (Europe)
DSL (Canada)

STATE REGULATIONS:
STATE REGULATORY STATUS: This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):.

None.
PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity, and for which warnings are now required.

CANADIAN REGULATIONS:
REGULATORY STATUS: This Material Safety Data Sheet has been prepared in compilance with the Controled Product Regulations.

Canadian WHMIS Classification: Not a Controlled Product.

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX: 1 Slight Hazard
FLAMMABILITY: 1 Slight Hazard

REACTIVITY:	0 Minimal Hazard
NPCA HMIS PERS. PROTECT. INDEX:	J - Splash Goggles, Gloves, Synthetic Apron, Dust and Vapor Respirator.
USER NOTES:	N/A = Not applicable N/D = Not determined
INFORMATION SOURCES:	OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants. ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition). Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997). Product information provided by the commercial vendor(s).
PREPARED BY:	Sam Hoskin/bb
REVISION No./Repl. MSDS of:	2/February 17, 1998
MSDS STATUS:	Approved.
DATE:	February 6, 2001

DISCLAIMER:
MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditiions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

AMBER CHEMICAL, INC.
5201 BOYLAN STREET
BAKERSFIELD, CA 93308
(661) 325-2072

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, ACCIDENT CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.

MATERIAL SAFETY DATA SHEET

MD-C

MSDS No.: A240 Date Created: 1/05/05 Revised: N/A

SECTION 1. GENERAL PRODUCT INFORMATION

Trade Name: MD-C
Chemical Name: Modified Alkanolamide
Chemical Formula: Proprietary
Synonyms: Detergent ; Drilling Detergent ; MUD DETERGENT
NFPA Properties: Health: 1 Flammability: 0 Reactivity: 0

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

No hazardous ingredients per 29 CFR Part 1910

SECTION 3. HAZARDS IDENTIFICATION

Description: Clear liquid
Routes of Entry: Inhalation: Yes **Skin:** Yes **Ingestion:** Yes
Effects of Overexposure: May irritate eyes and/or skin.
Chronic & Acute Effects of overexposure: None known

SECTION 4. FIRST AID MEASURES

Ingestion: Give large amounts of water and call a physician
Skin: Remove contaminated clothing and wash skin with soap and water for at least 15 minutes.
Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen and call a physician.
Eyes: Immediately flush eyes with plenty of water for at least 15 minutes and call a physician.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Sensitivity to Mechanical Impact: None
Fire Fighting Extinguishing Media: Water spray, water fog, carbon dioxide, dry chemical, foam, sand or soil.
Fire Fighting Equipment: Wear appropriate Personal Protective Equipment and a NIOSH (or equivalent) self contained (positive pressure if available) breathing apparatus with full face piece.
Fire and Explosion Hazards: None known.
Toxic Gasses Produced: Carbon monoxide, carbon dioxide and oxides of Nitrogen

SECTION 6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Wear appropriate Personal Protective Equipment, including a NIOSH (or equivalent) approved respirator. Use inert materials to absorb the liquids prior to flushing the spill area with copious amounts of water. Collect the waste in appropriate containers for disposal.

SECTION 7. HANDLING AND STORAGE

Handling Information: Store in a cool, dry and well ventilated storage area. Wear appropriate protective clothing and equipment suitable for the work being done.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: If needed, use local exhaust to keep dust to a minimum. Practice good hygiene and good housekeeping to minimize contamination. An eye-wash station and a safety shower should be located in the immediate area.
Protective Clothing: Wear rubber or plastic gloves, safety goggles (or safety glasses with a side-shield) and a NIOSH (or equivalent) mask while handling this product.
Respiratory Protection: Wear a NIOSH (or equivalent) approved respirator or mask.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Determined	**Melting Point:** Not Applicable
Specific Gravity: 0.84	**Color:** Clear
Vapor Pressure: 1 mm Hg.	**Odor:** Mild
Percent Volatility: Not Applicable.	**Appearance:** Liquid
Vapor Density: Not Applicable	**pH:** 7 - 9
Evaporation Rate: 1	**Viscosity:** Not Determined
Solubility in Water: Soluble	**Flash Point:** Not Applicable

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable
Hazardous polymerization: Will not occur
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide and oxides of Nitrogen.
Conditions to Avoid: Heat and humidity
Incompatibility: Strong oxidizers such as Hydrogen Peroxide, Bromine and Chromic Acid.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity: No data available.
Acute Inhalation Toxicity: No data available.
Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

SECTION 12. ECOLOGICAL INFORMATION

No Data Available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Disposal must be in accordance with federal, state and local regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues and containers.

SECTION 14. TRANSPORT INFORMATION

DOT Shipping Name: Not a DOT/IMO Hazardous Material

SECTION 15. REGULATORY INFORMATION

No other regulatory concerns known

SECTION 16. OTHER INFORMATION

MSDS No: A240

Prepared By:

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, expressed or implied, and we assume no responsibility for any damage or expense.

MATERIAL SAFETY DATA SHEET

MSDS NO. 10068 **Trade Name:** POLY-PLUS® RD **Revision Date:** 10/08/2003

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: POLY-PLUS® RD
Chemical Family: Acrylamide copolymer.
Product Use: Oil well drilling fluid additive.
Emergency Telephone (24 hr.): 281-561-1600

Supplied by: M-I L.L.C.
A Smith/Schlumberger Company
P.O. Box 42842
Houston, TX 77242
Telephone Number: 281-561-1511
Contact Person: Catherine Miller, Product Safety

Revision Number: 3

HMIS Rating

Health: 1 **Flammability:** 1 **Physical Hazard:** 0 **PPE:** E

HMIS Key: 4=Severe, 3=Serious, 2=Moderate, 1=Slight, 0=Minimal Hazard. *Chronic effects - See Section 11. See Section 8 for Personal Protective Equipment recommendations.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS NO:	Wt. %	Ingredient Comments:
Anionic acrylamide copolymer		90 - 100	No comments.

3. HAZARDS IDENTIFICATION

Emergency Overview: Caution! May cause mechanical irritation of eyes, skin and respiratory tract. Long term inhalation of particulates may cause lung damage.

Canadian WHMIS:

UN PIN No: Not regulated **WHMIS Class:** Not a controlled product.

Physical State: Powder **Odor:** Odorless **Color:** White

Potential Health Effects:

Acute Effects

Eye Contact: May cause mechanical irritation
Skin Contact: May cause mechanical irritation.
Inhalation: May cause mechanical irritation.
Ingestion: May cause gastric distress, nausea and vomiting if ingested.

Acute Effects Note: This product may release ammonia or amines when heated or exposed to high pH. Ammonia is a severe eye, skin and respiratory irritant. Ammonia has a very strong odor and can be detected at levels as low as 5 ppm. Many amines are also eye, skin and respiratory irritants.

Carcinogenicity & Chronic Effects: See Section 11 - Toxicological Information.
Routes of Exposure: Eyes. Dermal (skin) contact. Inhalation.
Target Organs: Eyes. Skin. Respiratory System.
Medical Conditions Aggravated By Over Exposure: Skin. Respiratory.

4. FIRST AID MEASURES

Eye Contact: Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

Skin Contact: Wash skin thoroughly with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if any discomfort continues.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Dilute with 2 - 3 glasses of water or milk, if conscious. Never give anything by mouth to an unconscious person. If signs of irritation or toxicity occur seek medical attention.

General Notes: Persons seeking medical attention should carry a copy of this MSDS with them.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: F (C): NA
Flammable Limits in Air - Lower (%): ND
Flammable Limits in Air - Upper (%): ND
Autoignition Temperature: F(C) ND
Flammability Class: NA
Other Flammable Properties: Particulate may accumulate static electricity. Dusts at sufficient concentrations can form explosive mixtures with air.
Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Protection Of Fire-Fighters:

Special Fire-Fighting Procedures: Do not enter fire area without proper personal protective equipment, including NIOSH/MSHA approved self-contained breathing apparatus. Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and waterways.

Hazardous Combustion Products: Ammonia or amines. Oxides of: Carbon. Nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protective equipment identified in Section 8.

Spill Procedures: Evacuate surrounding area, if necessary. Wet product may create a slipping hazard. Contain spilled material. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.

Environmental Precautions: Do not allow to enter sewer or surface and subsurface waters. Waste must be disposed of in accordance with federal, state and local laws.

7. HANDLING AND STORAGE

Handling: Put on appropriate personal protective equipment. Avoid contact with skin and eyes. Avoid generating or breathing dust. Product is slippery if wet. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Store in dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (TLV & PEL - 8H TWA):

Ingredient	CAS NO:	Wt. %	ACGIH TLV	OSHA PEL	Other	Notes
Anionic acrylamide copolymer		90 - 100	NA	NA	NA	(1) (6)

Notes
(1) Control as an ACGIH particulate not otherwise specified (PNOS): 10 mg/m^3 (Inhalable); 3 mg/m^3 (Respirable) and an OSHA particulate not otherwise regulated (PNOR): 15 mg/m^3 (Total); 5 mg/m^3 (Respirable).
(6) Ammonia or amines may be released when this component is heated or exposed to high pH. The recommended exposure limits for ammonia are ACGIH TLV 25 ppm and OSHA PEL 50 ppm. No general recommended exposure limit is available for amines. A NIOSH/MSHA approved respirator with ammonia/methylamine cartridges should be used to protect against ammonia or amine inhalation exposure.

Engineering Controls: Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to ensure air contamination and keep workers exposure below the applicable limits.

Personal Protection Equipment

Eye/Face Protection: Dust resistant safety goggles.

Skin Protection: Not normally necessary. If needed to minimize irritation: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear chemical resistant gloves such as: Nitrile. Neoprene.

Respiratory Protection: If exposed to particulates/aerosols:
Use at least a NIOSH-approved N95 half-mask disposable particulate respirator.
In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.
If exposed to organic vapors:
Use a NIOSH/MSHA-approved organic vapor respirator. CCROV: CCR with organic vapor cartridge.

Refer to Exposure Limits table (Section 8) for component specific respiratory protection recommendations.

General Hygiene Considerations: Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded, if contaminated with product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color: White
Odor: Odorless
Physical State: Powder
pH: 7.7 (1% solution)
Vapor Pressure: NA
Vapor Density (Air=1): NA
Boiling Point: ND
Melting/Freezing Point: ND
Solubility (Water): Soluble.
Specific Gravity (H2O = 1): 1.25 - 1.40 at 68F (20C)
Evaporation Rate: NA
Odor Threshold(s): ND

10. STABILITY AND REACTIVITY

Chemical Stability: Stable
Conditions to Avoid: Heat. Moisture.
Materials to Avoid: Oxidizers.
Hazardous Decomposition Products: For thermal decomposition products, see Section 5.
Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Component Toxicological Data

Ingredient	CAS NO:	Acute Data
Anionic acrylamide copolymer		Oral LD50: Estimated >2000 mg/kg (rat)

Product Toxicological Information:
Long term inhalation of particulate can cause irritation, inflammation and/or permanent injury to the lungs. Illnesses such as pneumoconiosis ("dusty lung"), pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma may develop.

This product contains trace amounts of acrylamide (< 0.1%). Acrylamide has been classified by the International Agency for Research on Cancer (IARC) as a Group 2A carcinogen (probably carcinogenic to humans) and a suspect carcinogen by the National Toxicology Program (NTP). (LOLI)

12. ECOLOGICAL INFORMATION

Product Ecotoxicity Data: Contact M-I Environmental Affairs Department for available product ecotoxicity data.

Biodegration: ND
Bioaccumulation: ND
Octanol/Water Partition Coefficient: ND

13. DISPOSAL CONSIDERATIONS

Waste Classification: ND

Waste Management: Under U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine at the time of disposal, whether the product meets RCRA criteria for the hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

Disposal Method: Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that the containers are empty by the RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

U.S. DOT
Shipping Description: Not regulated for transportation by DOT, TDG, IMDG, ICAO/IATA.

TDG (Canada):
Shipping Description: Not regulated

UN PIN No: Not regulated

IMDG:
Shipping Description: Not regulated

ICAO/IATA:
Shipping Description: Not regulated

15. REGULATORY INFORMATION

U.S. Federal and State Regulations

SARA 311/312 Hazard Catagories: Not a SARA 311/312 hazard.

SARA 302/304, 313; CERCLA RQ, California Proposition 65: Note: If no components are listed below, this product is not subject to the referenced SARA and CERCLA regulations and is not known to contain a Proposition 65 listed chemical at a level that is expected to pose a significant risk under anticipated use conditions.

International Chemical Inventories

Australia AICS - Components are listed or exempt from listing.
Canada DSL - Components are listed or exempt from listing.
European EINECS - Components are listed or exempt from listing.
U.S. TSCA - Components are listed or exempt from listing.
U.S. TSCA - No components are subject to TSCA 12(b) export notification requirements.

Canadian WHMIS:

Controlled Products Regulations Statement: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS Class: Not a controlled product.

16. OTHER INFORMATION

The following sections have been revised: All sections.

NA - Not Applicable, ND - Not Determined.

Disclaimer:
MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We can not make any assertions as to its reliability or completeness; therefore, user may rely on it only at user´s risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guartantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

AMBER CHEMICAL INCORPORATED

MATERIAL SAFETY DATA

5201 BOYLAN STREET, BAKERSFIELD, CA 93308 (661) 325-2072

REVISION DATE : 5/20/2000

EMERGENCY TELEPHONE NUMBER: FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, ACCIDENT CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.

SECTION ONE - PRODUCT DESCRIPTION

PRODUCT NAME: TBP-EX DEFOAMER

CHEMICAL DESCRIPTION: Blend of Trialkyl Phosphate/Aliphatic Alcohol/Hydrocarbon

SYNONYMS: None

DOT HAZARD CLASS: Non-Hazardous

DOT SHIPPING NAME:: Chemicals, n.o.i.

SECTION TWO - HAZARDOUS INGREDIENT

CHEMICAL	CAS NUMBER	% PRESENT	TLV OR PEL
Tributyl Phosphate	126-73-8	35%	TWA=0.2ppm

SECTION THREE - PHYSICAL DATA

BOILING POINT - 285°F

SOLUBILITY IN WATER (% BY VOLUME) - Slightly

EVAPORATION RATE (BUTYL ACETATE = 1) - N.A.

% VOLATILES BY VOLUME - Nil

SPECIFIC GRAVITY (H_2O=1) - .91

FREEZING POINT - N.A.

VAPOR PRESSURE @ 20°C - <1mm

VAPOR DENSITY - >1

APPEARANCE AND ODOR - Clear, pale brown liquid with characteristic odor

SECTION FOUR - FIRE AND EXPLOSION HAZARD

FLASH POINT [TEST METHOD(S)] 310°F (Cleveland Open Cup)

FLAMMABLE LIMITS IN AIR, % BY VOLUME -- Not Established

EXTINGUISHING MEDIA - Water, Dry Chemical, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS - NONE

SPECIAL FIRE FIGHTING PROCEDURES - As with most chemical fires, it is advised that firemen be supplied with self-contained breathing devices equipped with full face piece..

While Amber Chem. believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted the data are not to be taken as a warranty or representation for which Amber Chem. assumes legal responsibility. They are offered solely for your consideration, investigation and verification. Any use of these data and information must be determined by the user in accordance with applicable Federal, State and local laws and regulations.

SECTION FIVE - HEALTH AND FIRST AID DATA

ACUTE EFFECTS OF OVEREXPOSURE:

SWALLOWING - Ingestion may cause irritation to the membrances of the mouth, throat and gastrointestinal tract. Nausea, vomiting, cramps and diarrhea may occur. In severe cases, tissue ulceration and central nervous system effects may result.

SKIN ABSORPTION - None currently known.

INHALATION - No health effects are known to occur from inhalation of this product. Inhalation of mists or sprays may result in non-specific irritation of the upper respiratory tract.

SKIN CONTACT - Contact with skin could produce severe local irritation.

EYE CONTACT - Severe local irritation may result. CORNEAL DAMAGE MAY OCCUR IF NOT PROMPTLY WASHED AWAY WITH WATER.

CHRONIC EFFECTS OF OVEREXPOSURE - No chronic effects, either systemic or local are known.

OTHER HEALTH HAZARDS - None currently known.

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING - Give large amounts of warm salt water to induce vomiting or by putting finger down the patient's throat. Vomiting should be encouraged until vomitus is clear. Milk, eggs, or olive oil may be given after vomiting, for their soothing effect. Obtain medical attention.

SKIN - Flush affected area with water, followed by washing with soap and water until all material is removed. Obtain medical attention if irritation persists.

INHALATION - Remove from contaminated atmosphere. If symptoms of respiratory discomfort persist, obtain medical attention.

EYES - Immediately flush eyes with large quantities of water. Do not attempt to neutralize with chemical agents. Obtain medical attention if irritation persists.

TLV OR PEL AND SOURCE - None currently established.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM:

HEALTH: (2)

FLAMMABILITY: (1)

REACTIVITY: (1)

PERSONAL PROTECTION EQUIPMENT: (C)

Goggles, gloves, synthetic apron.

HAZARD INDEX *
4 SEVERE HAZARD
3 SERIOUS HAZARD
2 MODERATE HAZARD
1 SLIGHT HAZARD
0 MINIMAL HAZARD

*USED AND ASSIGNED BY AMBER CHEMICAL INC. TO IDENTIFY HAZARDS OF THE MATERIAL. SEE

INCOMPATIBILITY WITH OTHER MATERIALS: None currently known.

HAZARDOUS DECOMPOSITION PRODUCTS: None currently known.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None currently known.

SECTION SEVEN - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Wear suitable protective equipment. Small Spills: Absorb liquid with absorbent material. Large Spills: Stop spill at source. Dike area of the spill to prevent spreading. Pump liquids into waste containers. Remaining liquids can be absorbed.

WASTE DISPOSAL METHOD: Incinerate or landfill where permitted under appropriate federal, state and local regulations. TBP-EX DEFOAMER would be defined as hazardous (Corrosive) by the U.S. EPA, and must be disposed of in accordance with the law. Questions concerning disposal should be directed to Amber Chemical.

SECTION EIGHT - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Self-contained breathing apparatus in high concentrations. Normally not required.

VENTILATION: General (mechanical) room ventilation is expected to be satisfactory.

PROTECTIVE GLOVES: Butyl or neoprene rubber.

EYE PROTECTION: Monogoggles.

OTHER PROTECTIVE EQUIPMENT: Synthetic apron, eye wash station.

SECTION NINE - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Soiled clothing should be removed and laundered before reuse. Store below 120°F.

Material Safety Data Sheet

Material Name: PARCO DEFOAMER 14 **ID: 231429DLM400 / IDH No. 594704**

* * * Section 1 - Chemical Product and Company Identification * * *

Product Trade Name PARCO DEFOAMER 14

Manufacturer Information

Henkel Surface Technologies
Henkel Corporation
32100 Stephenson Highway
Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
64742-53-6	Petroleum distillates, hydrotreated light naphthenic	>80

* * * Section 3 - Hazards Identification * * *

Emergency Overview:

CAUTION! This product may cause eye and skin irritation. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination.

Eye Contact:

This product may cause irritation to the eyes.

Skin Contact:

Prolonged and/or repeated skin contact with this product may cause irritation/dermatitis.

Ingestion:

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury.

Inhalation:

Inhalation of vapors or mists of the product may be irritating to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination.

Medical Conditions Aggravated by Exposure:

Pre-existing eye, skin and respiratory disorders.

* * * Section 4 - First Aid Measures * * *

Eye Contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If irritation persists get medical attention.

Skin Contact:

For skin contact, wash immediately with soap and water. If irritation persists, get medical attention.

Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

First Aid: Notes to Physician

This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point:	280 ºF (137.8 ºC)	**Method Used:**	C.O.C.	**Flammability Classification:**	Combustible (IIIB)
Upper Flammable Limit (UFL):	Not determined	**Lower Flammable Limit (LFL):**	Not determined		

Fire & Explosion Hazards:

This product is combustible at high temperatures.

Decomposition Products:

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Extinguishing Media:

Dry chemical, foam, carbon dioxide, water fog.

Fire-Fighting Instructions:

Firefighters should wear full protective clothing including self contained breathing apparatus.

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures:

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-up. Remove sources of ignition.

Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

* * * Section 7 - Handling and Storage * * *

Handling Procedures:

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists of this product. Eliminate all sources of ignition. Do not take internally. For industrial use only. Launder work clothes frequently.

Storage Procedures:

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines:

A: General Product Information

Keep formation of airborne mists to a minimum. If oil mists are generated, observe the OSHA exposure limit of 5 mg/m3.

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Engineering Controls:

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

Eyes/Face Protective Equipment:

Wear chemical goggles; face shield (if splashing is possible).

Skin Protection:

Use impervious gloves. Use of impervious apron and boots are recommended.

Respiratory Protection:

If mist is generated (heating, spraying) and engineering controls are not sufficient, wear approved organic vapor respirator suitable for oil mist.

Work Practices:

Eye wash fountain and emergency showers are recommended.

* * * Section 9 - Physical & Chemical Properties * * *

Physical State:	Liquid	**Appearance:**	Opaque tan
Odor:	Light petroleum oil	**Vapor Pressure:**	Not determined
Vapor Density:	Not determined	**Boiling Point:**	>350 ºF (>176.7 ºC)
Specific Gravity:	0.85 - 0.90	**pH:**	6.5-7.5
Viscosity:	Not determined	**VOC:**	1.9% (EPA Method 24)
Solubility Water:	Emulsifiable	**Evaporation Rate:**	Not applicable
Percent Volatile:	Not determined	**Percent Solids:**	Not applicable

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability:

Stable under normal conditions.

Conditions to Avoid:

Keep away from heat, ignition sources and incompatible materials.

Incompatibility:

This product may react with strong oxidizing agents.

Decomposition Products:

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Hazardous Polymerization:

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity:

A: General Product Information

No information available for the product.

B: Component Analysis - LD50/LC50

Petroleum distillates, hydrotreated light naphthenic (64742-53-6)

Inhalation LC50 Rat: 2.18 mg/L/4H; Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Carcinogenicity:

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Chronic Toxicity

No information available for the product.

Epidemiology:

No information available for the product.

Neurotoxicity:

No information available for the product.

Mutagenicity:

No information available for the product.

Teratogenicity:

No information available for the product.

Other Toxicological Information:

None available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity:

A: General Product Information

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Petroleum distillates, hydrotreated light naphthenic (64742-53-6)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	>5000 mg/L	
48 Hr EC50 Daphnia magna	>1000 mg/L	

Environmental Fate:

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Numbers & Descriptions:

A: General Product Information

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions:

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Please refer to the container label for transportation information.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312: **Acute:** Yes **Chronic:** No **Fire:** No **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

No additional information available.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Petroleum distillates, hydrotreated light naphthenic	64742-53-6	No	No	Yes	No	No	No

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Petroleum distillates, hydrotreated light naphthenic	64742-53-6	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

* * * Section 16 - Other Information * * *

NFPA Ratings: Health: 1 **Fire:** 1 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
HMIS Ratings: Health: 1 **Fire:** 1 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Henkel Surface Technologies bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Contact: Product Safety and Regulatory Affairs
Contact Phone: (248) 583-9300

This is the end of MSDS # 231429DLM400 / IDH No. 594704

Material Safety Data Sheet
Potassium Hydroxide

Section 1 - Chemical Product and Company Identification

MSDS Name: Potassium Hydroxide
Catalog Numbers: KOH-4, KOH-8, KOH-40, KOH-BULK
Synonyms: Caustic potash, Lye, Potassium hydrate
Company Identification:
Essential Depot, Inc. 4210 Lafayette Ave, Sebring, FL 33875
For information, call: 863-658-4230
For CHEMTREC assistance, call 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
1310-58-3	Potassium hydroxide (KOH)	100.0	215-181-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white or yellow. **Danger!** Corrosive. Water-Reactive. Harmful if swallowed. Causes severe eye and skin burns. Causes severe digestive and respiratory tract burns.
Target Organs: None.
Potential Health Effects
Eye: Causes severe eye burns. May cause irreversible eye injury. Contact may cause ulceration of the conjunctiva and cornea. Eye damage may be delayed.
Skin: Causes skin burns. May cause deep, penetrating ulcers of the skin.
Ingestion: Harmful if swallowed. May cause circulatory system failure. May cause perforation of the digestive tract. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death.
Inhalation: Harmful if inhaled. Irritation may lead to chemical pneumonitis and pulmonary edema. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.
Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact may cause conjunctivitis.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure.
Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water with caution and in flooding amounts. Contact with moisture or water may generate sufficient heat to ignite nearby combustible materials.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Do not allow water to get into the container because of violent reaction. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids. Keep away from water. Keep away from metals. Keep away from flammable liquids. Keep away from organic halogens.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Potassium hydroxide (KOH)	C 2 mg/m3	none listed	none listed

OSHA Vacated PELs: Potassium hydroxide (KOH): C 2 mg/m3
Personal Protective Equipment
Eyes: Wear safety glasses and chemical goggles or face shield if handling liquids.
Skin: Wear appropriate gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: white or yellow
Odor: odorless
pH: 13.5 (0.1M solution)
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 2408 deg F
Freezing/Melting Point:680 deg F
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
Decomposition Temperature: Not available.
NFPA Rating: (estimated) Health: 3; Flammability: 0; Reactivity: 1
Explosion Limits, Lower: Not available.
Upper: Not available.
Solubility: Soluble in water
Specific Gravity/Density:2.04
Molecular Formula:KOH
Molecular Weight:56.1047

Section 10 - Stability and Reactivity

Chemical Stability: Stable. Readily absorbs carbon dioxide and moisture from the air and deliquesces.
Conditions to Avoid: Incompatible materials, moisture, contact with water, acids, metals.
Incompatibilities with Other Materials: Generates large amounts of heat when in contact with water and may steam and splatter. Reacts with chlorine dioxide, nitrobenzene, nitromethane, nitrogen trichloride, peroxidized tetrahydrofuran, 2,4,6-trinitrotoluene, bromoform+ crown ethers, acids alcohols, sugars, germanium cyclopentadiene, maleic dicarbide. Corrosive to metals such as aluminum, tin, and zinc to cause formation of flammable hydrogen gas.
Hazardous Decomposition Products: Oxides of potassium.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 1310-58-3: TT2100000
LD50/LC50:
CAS# 1310-58-3:
Draize test, rabbit, skin: 50 mg/24H Severe;
Oral, rat: LD50 = 273 mg/kg;<BR.

Carcinogenicity:
CAS# 1310-58-3: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No data available.
Teratogenicity: No information reported.
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: No data available.
Other Studies: No data available.

Section 12 - Ecological Information

Ecotoxicity: Fish: Mosquito Fish: LC50 = 80.0 mg/L; 24 Hr.; Unspecified No data available.
Environmental: No information found.
Physical: No information found.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	POTASSIUM HYDROXIDE, SOLID				POTASSIUM HYDROXIDE
Hazard Class:	8				8(9.2)
UN Number:	UN1813				UN1813
Packing Group:	II				II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 1310-58-3 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b

None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA

Section 302 (RQ)
CAS# 1310-58-3: final RQ = 1000 pounds (454 kg)
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 1310-58-3: acute, reactive.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 1310-58-3 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 1310-58-3 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed. **European/International Regulations**
European Labeling in Accordance with EC Directives
Hazard Symbols:
C
Risk Phrases:
R 22 Harmful if swallowed.
R 35 Causes severe burns.

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately
with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves
and eye/face protection.
S 45 In case of accident or if you feel unwell, seek
medical advice immediately (show the label where
possible).

WGK (Water Danger/Protection)
CAS# 1310-58-3: 1
Canada
CAS# 1310-58-3 is listed on Canada's DSL List. CAS# 1310-58-3 is listed on Canada's DSL List.
This product has a WHMIS classification of D1B, E.
CAS# 1310-58-3 is listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 1310-58-3: OEL-AUSTRALIA:TWA 2 mg/m3 OEL-BELGIUM:STEL 2 mg/m3
OEL-DENMARK:TWA 2 mg/m3 OEL-FINLAND:TWA 2 mg/m3 OEL-FRANCE:STEL 2 m
g/m3 OEL-JAPAN:STEL 2 mg/m3 OEL-THE NETHERLANDS:TWA 2 mg/m3 OEL-SWI
TZERLAND:TWA 2 mg/m3 OEL-UNITED KINGDOM:TWA 2 mg/m3;STEL 2 mg/m3 OEL
IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEAL
AND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 6/21/1999
Revision #3 Date: 10/06/2000
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Essential Depot, Inc. *be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental consequential or exemplary damages, howsoever arising, even if* Essential Depot, Inc. *has been advised of the possibility of such damages.*

MATERIAL SAFETY DATA SHEET
LIGNITE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME:	LIGNITE
APPLICATIONS:	Oil well drilling fluid additive. Dispersant
EMERGENCY TELEPHONE:	281-561-1600
SUPPLIER:	Supplied by a Business Unit of M-I L.L.C. P.O. Box 42842, Houston, Texas 77242-2842 See cover sheet for local supplier.
TELEPHONE:	281-561-1509
FAX:	281-561-7240
CONTACT PERSON:	Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Silica, crystalline, quartz	14808-60-7	0-5 %		
Lignite	1415-93-6	95-100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an black powder. May form explosive dust-air mixtures. Slippery when wet.

ACUTE EFFECTS:

HEALTH HAZARDS, GENERAL:

Particulates may cause mechanical irritation to the eyes, nose, throat and lungs. Particulate inhalation may lead to pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma. Dermatitis and asthma may result from short contact periods.

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:

CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ATTENTION! CANCER HAZARD. CONTAINS CRYSTALLINE SILICA WHICH CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC classification Group 1.

ROUTE OF ENTRY:

Inhalation. Skin and/or eye contact.

TARGET ORGANS:

Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL: Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION: Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION: Drink a couple of glasses water or milk. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. Get medical attention.

SKIN: Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES: Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

FLASH POINT (?F):	309	METHOD: PM Closed cup.
AUTO IGNITION TEMP. (?F):	N/D	
FLAMMABILITY LIMIT - LOWER(%):	N/D	
FLAMMABILITY LIMIT - UPPER(%):	N/D	

EXTINGUISHING MEDIA:

Carbon dioxide (CO_2). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:

No specific fire fighting procedure given.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Dust in high concentrations may form explosive mixtures with air.

HAZARDOUS COMBUSTION PRODUCTS:

Irritating gases/vapors/fumes. Oxides of: Carbon.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:

Avoid generating and spreading of dust. Shovel into dry containers. Cover and move the containers. Flush the area with water. Do not contaminate drainage or waterways. Repackage or recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:

Avoid handling causing generation of dust. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed. Provide good ventilation. Mechanical ventilation or local exhaust ventilation is required.

STORAGE PRECAUTIONS:

Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

INGREDIENT NAME:	CAS No.:	OSHA PEL: TWA:	OSHA PEL: STEL:	ACGIH TLV: TWA:	ACGIH TLV: STEL:	OTHER: TWA:	OTHER: STEL:	UNITS:
Silica, crystalline, quartz	14808-60-7	*		0.1				mg/m3 resp.dust
Lignite	1415-93-6	*		2 *				mg/m3 resp.dust

INGREDIENT COMMENTS:

* OSHA PELs for Mineral Dusts containing crystalline silica are 10 mg/m3 / (%SiO2+2) for quartz and 1/2 the calculated quartz value for cristobalite and tridymite.

PROTECTIVE EQUIPMENT:

ENGINEERING CONTROLS:

Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: Use at least a NIOSH-approved N95 half-mask disposable or reuseable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator. For exposures exceeding 10 x PEL use a NIOSH-approved N100 Particulate Respirator.

PROTECTIVE GLOVES:

Use suitable protective gloves if risk of skin contact.

EYE PROTECTION:

Wear dust resistant safety goggles where there is danger of eye contact.

PROTECTIVE CLOTHING:

Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:

Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Powder, dust.

COLOR:	Black.	
ODOR:	Earthy.	
SOLUBILITY DESCRIPTION:	Insoluble in water.	
DENSITY/SPECIFIC GRAVITY (g/ml):	1.6 - 1.8	TEMPERATURE (?F): 68
BULK DENSITY:	40 lb/ft3; 641 kg/m3	
VAPOR DENSITY (air=1):	N/D	
pH-VALUE, DILUTED SOLUTION:	4.5	CONCENTRATION (%,M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Avoid heat.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
N/D

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:
No toxicological data is available for this product.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:
Contact M-I Environmental Affairs for ecological information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting materials hazardous.
Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

PRODUCT RQ: N/A

U.S. DOT:
U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

SEA TRANSPORT:
IMDG CLASS: Not regulated.

AIR TRANSPORT:
ICAO CLASS: Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Silica, crystalline, quartz	14808-60-7	Yes	No	No	No	Yes
Lignite	1415-93-6	Yes	No	No	No	Yes

US FEDERAL REGULATIONS:
WASTE CLASSIFICATION: Not a hazardous waste by U.S. RCRA criteria. See Section 13.

REGULATORY STATUS: This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA 311 Categories:
1: Immediate (Acute) Health Effects.
2. Delayed (Chronic) Health Effects.
The components of this product are listed on or are exempt from the following international chemical registries:

TSCA (U.S.)
DSL (Canada)

STATE REGULATIONS:
STATE REGULATORY STATUS: This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):.
Pennsylvania Right-to-Know.
Illinois Right-to-Know.
New Jersey Right-to-Know.

PROPOSITION 65: This product contains the following chemical(s) considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity, and for which warnings are now required:
Silica, crystalline

CANADIAN REGULATIONS:

LABELS FOR SUPPLY:

REGULATORY STATUS: This Material Safety Data Sheet has been prepared in compilance with the Controled Product Regulations.

Canadian WHMIS Classification: D2A - Other Toxic Effects: Very Toxic Material

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX: * 1 Slight Hazard
FLAMMABILITY: 2 Moderate Hazard
REACTIVITY: 0 Minimal Hazard
NPCA HMIS PERS. PROTECT. INDEX: E - Safety Glasses, Gloves, Dust Respirator

USER NOTES: N/A = Not applicable N/D = Not determined

INFORMATION SOURCES:
OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants.
ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition).
Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997).
IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Silica, Some Silicates, Coal Dust, and para-Aramid Fibrils, Vol. 68, World Health Organization, Lyon, France, 1997.
Product information provided by the commercial vendor(s).

PREPARED BY: Sam Hoskin/bb

REVISION No./Repl. MSDS of: 2/May 18, 1999

MSDS STATUS: Approved.

DATE: February 5, 2002

DISCLAIMER:
MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals an/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	March 6, 2007
	8750 – 53rd Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899

PRODUCT NAME: **Prima-Seal (FINE, MEDIUM, & COARSE)**

PRODUCT USE: Oil well drilling fluid additive
CHEMICAL FAMILY: Vegetable and polymer fibres. CAS#: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS controlled.
WORKPLACE HAZARD: Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME: Not regulated under TDG
TDG CLASSIFICATION: Not applicable
UN NUMBER (PIN): Not applicable
PACKING GROUP: Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Contains no WHMIS controlled ingredients.					

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [ ] SKIN [ ] INHALATION [ ] INGESTION
EYE CONTACT: May cause mechanical irritation.
SKIN CONTACT: Prolonged or repeated contact may cause irritation in some individuals.
INGESTION: Not toxic.
INHALATION: May cause slight irritation of the upper respiratory tract.
CARCINOGENICITY: No information available.
TERATOGENICITY: No information available.
REPRODUCTIVE TOXICITY: No information available.

MUTAGENICITY:	No information available.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Flush with water. Launder contaminated clothing before re-use. If irritation persists, obtain medical attention.
EYE CONTACT:	Immediately flush with gently flowing warm water until particles are removed. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. If conscious, rinse out mouth and give 1 to 2 glasses of water to drink. If vomiting occurs keep head below hips to prevent aspiration of vomitus and readminister water. If symptoms develop, obtain medical attention. Never give anything by mouth to an unconscious or convulsing victim.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress, continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Yellow/brown particles; slight odour	
SPECIFIC GRAVITY:	Not applicable	
BOILING POINT (°C):	Not applicable	
MELTING POINT (°C):	Not applicable	
SOLUBILITY IN WATER:	Insoluble	pH: Not applicable
PERCENT VOLATILE BY VOLUME:	Not applicable	
EVAPORATION RATE:	Not applicable	
VAPOUR PRESSURE (mmHg):	Not applicable	
VAPOUR DENSITY (air = 1):	Not applicable	
BULK DENSITY:	Not available	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not flammable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use media suitable for packaging and surrounding materials. Move containers from fire area if possible.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	This material can burn under fire conditions.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	None known.	
CONDITIONS OF REACTIVITY:	None known.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Not determined.	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Use an approved dust mask, or respirator with dust cartridges, if ventilation is inadequate.
VENTILATION:	Use local exhaust ventilation, process enclosure or other engineering controls to maintain dust level below TLV.
PROTECTIVE GLOVES:	Personal preference.
EYE PROTECTION:	Safety glasses with side-shields recommended.
OTHER PROTECTIVE EQUIPMENT (Specify):	Wear clothing adequate to protect against exposure. Ensure eye-wash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Wash thoroughly after handling. Avoid contact with eyes, skin or clothing. Avoid generating dust. Store in a cool, dry area away from ignition sources.

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

Use appropriate safety equipment. Vacuum or sweep up. Avoid creating dust clouds. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. This material can be landfilled in most areas; check with local operator. It is the responsibility of the end user to determine if material meets the criteria of hazardous waste at the time of disposal.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	March 6, 2007	BY:	Product safety committee
SUPERSEDES:	March 23, 2001	PHONE:	1-780-440-4923

Diversity Technologies Corp. is the parent company of Canamara-United Supply, Hollimex Products, The Drilling Depot and Westcoast Drilling Supplies.