STATE OF COLORADO

Girardi - DNR, Chris <chris.girardi@state.co.us>

Fwd: MSDS SHEETS

HARALD HOEGBERG <geohoeg@comcast.net> Fri, Apr 4, 2025 at 2:41 PM
To: Chris Girardi <chris.girardi@state.co.us>

Hi Chris.
attached are the MSDS tjat had just been off loaded the day of your visit. Please let me know if there is anything else you need.
Best regards,
Harald

---------- Original Message ----------
From: Jonathan Godbe <jjgodbe@aol.com>
To: Harald <geohoeg@comcast.net>
Date: 04/03/2025 3:45 PM EDT
Subject: Fwd: MSDS SHEETS

Begin forwarded message:

From: Paul Bonato <pbonato@muddirect.net>
Date: April 3, 2025 at 1:32:28 PM MDT
To: Jonathan Godbe <jjgodbe@aol.com>, godbedrilling@gmail.com
Cc: Clint Pitman <cpitman@muddirect.net>, Michael Dymond <mdymond@muddirect.net>, Mike Sadler <msadler@muddirect.net>, Clint Goldsmith <cgoldsmith@muddirect.net>, Eamon Oveissy <eoveissy@muddirect.net>, Mark Umscheid <mumscheid@muddirect.net>, Jeff Kahler <jkahler@muddirect.net>, Jeff Garrison <jgarrison@muddirect.net>
Subject: MSDS SHEETS

Hello John,

Clint Pitman asked me to send yout MSDS sheets used for the Westcliffe job. Please let me know if you need anything further.

—

Kind Regards,

Paul Bonato
Vice President of Operations

T 720.489.0300
M 720.934.1614
pbonato@muddirect.net

DRILLING MUD DIRECT

Drilling Mud Direct, LLC

6 Inverness Court East, Suite 130
Englewood, CO 80112
www.muddirect.net

5 attachments

HYDROGEL_PLUS_SDS.pdf
122K

HYDROGEL_PLUS_PDS.pdf
110K

DMD Pac LV and Pac R SDS 2016 (1).pdf
97K

DMD_LUBRA-STAR PLUS_SDS.pdf
436K

DMD_LUBRA-STAR PLUS_PDS.pdf
151K

WYO-BEN, INC.

SAFETY DATA SHEET

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name:	**HYDROGEL® PLUS**
Chemical Family:	Mineral
Application:	Drilling Fluid
Manufacturer/Supplier:	Wyo-Ben, Inc. 1345 Discovery Drive Billings, MT 59102 USA Telephone: 800.548.7055 Facsimile: 406.656.0748
Emergency Phone Number	CHEMTREC® 1.800.424.9300

SECTION 2 — HAZARD IDENTIFICATION

Hazard Classification: Carcinogenicity (Category 1A)
Specific Target Organ Toxicity (Repeated Exposure) (Category 1)

Signal Word: Danger

Hazard Statements: May cause cancer.
Causes damage to organs through prolonged or repeated exposure.

Hazard Symbol:

Precautionary Statements

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breath dust. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.
Response:	If exposed or concerned: Get medical advice/attention. Get medical attention/advice if you feel unwell.
Storage:	Store locked up.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards Not Otherwise Classified: May cause eye and respiratory irritation.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	Percent
Crystalline Silica, quartz	14808-60-7	≤6%

SECTION 4 — FIRST AID MEASURES

Inhalation:	If inhaled, remove to a dust free area. Get medical attention if respiratory irritation develops or if breathing becomes difficult. Inhalation may aggravate existing respiratory illness.
Eyes:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin:	Wash with soap and water. Seek medical attention if irritation persists.
Ingestion:	Do Not induce vomiting. First aid measures not normally required.
Notes to Physician:	Treat symptomatically

SECTION 5 — FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	Product is non-combustible. All standard firefighting media may be used.
Unsuitable Extinguishing Media:	None
Special Exposure Hazards:	None known. Product is not combustible.
Special Protective Equipment and Precautions for Firefighters:	None for product. Wear self-contained breathing apparatus (SCBA) and full protective gear. Caution: slippery when wet.
NFPA Ratings:	Health 0, Flammability 0, Reactivity 0

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:	Use appropriate protective equipment. Avoid creating and breathing dust. Prevent further leakage or spillage if safe to do so.
Environmental Precautionary Measures:	No special environmental precautions required
Procedure for Cleaning/Absorption:	Prevent further leakage or spillage if safe to do so. Avoid generating dust. Collect using appropriate dustless method. Dispose in licensed landfill according to local, state and federal regulations.

SECTION 7 — HANDLING AND STORAGE

Handling Precautions:	This product contains quartz which may become airborne. Avoid breathing dust. Avoid creating dusty conditions. Promptly clean up spills to avoid breathing airborne dust. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH/MSHA European Standard En 149, or equivalent certified for silica bearing dust, respirator when using this product. Material is slippery when wet.
Storage Information:	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA*
Crystalline Silica, quartz	14808-60-7	0.025 mg/m^3	$\frac{10\ mg/m^3}{\%SiO2 + 2}$

* More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

Engineering Controls: Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Personal Protective Equipment: If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection: Not normally needed. If significant exposures exceeding occupational exposure limit are possible use NIOSH/MSHA respirator approved for silica bearing dust.

Hand Protection: Standard work gloves.

Skin Protection: Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection: Wear safety glasses or goggles to protect against exposure.

Other Precautions: None known.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powdered Solid
Color:	Light tan to gray as dry powder
Odor:	Odorless
pH:	8 – 10 (5% aqueous suspension)
Specific Gravity @ 20 C (Water=1):	2.45 – 2.55
Density @ 20 C (lbs/gallon):	Not determined
Bulk Density @ 20 C (lbs/ft^3):	49 - 70
Boiling Point/Range (F/C):	Not applicable
Freezing Point/Range (F/C):	Not applicable
Vapor Pressure @ 20 C (mmHg):	Not applicable
Vapor Density (Air=1):	Not applicable
Percent Volatiles:	Not applicable
Evaporation Rate (Butyl Acetate=1):	Not applicable
Solubility in Water (g/100ml):	Insoluble, forms colloidal suspension
Solubility in Solvents (g/100ml):	Not applicable
VOCs (lbs/gallon):	Not applicable
Viscosity, Dynamic @ 20 C (centipoise):	3.5 – 12.5 (6% aqueous suspension)

Viscosity, Kinematic @ 20 C (centistrokes):	Not determined
Partition Coefficient/n-Octanol/Water:	Not applicable
Molecular Weight (g/mole):	Not applicable
Flash Point/Range (F/C):	Not applicable
Flash Point Method:	Not applicable
Autoignition Temperature (F/C):	Not applicable
Flammability Limits in Air – Lower (%):	Not applicable
Flammability Limits in Air – Upper (%):	Not applicable

SECTION 10 — STABILITY AND REACTIVITY

Reactivity:	Nonreactive
Chemical Stability:	Stable
Possibility of Hazardous Reactions:	Will not occur.
Conditions to Avoid:	None
anticipated Incompatibility (Materials to Avoid):	None known
Hazardous Decomposition Products:	None
Additional Guidelines:	Not applicable

SECTION 11 — TOXICOLOGICAL INFORMATION

Principle Route of Exposure: Eye or skin contact, inhalation.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics

Inhalation:	Inhaled crystalline silica in the form or quartz from occupational sources is carcinogenic to humans (IARC, Group 1).
Skin Contact:	May cause skin irritation due to drying.
Eye Contact:	May cause mechanical eye irritation.
Ingestion:	None known
Aggravated Medical Conditions:	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable quartz-bearing dust.
Chronic Effects/Carcinogenicity:	Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis. Cancer Status: The International Agency for Research on Cancer (IARC, 1997) concludes that there is sufficient evidence in humans for carcinogenicity of inhaled crystalline silica from occupational sources (IARC Group 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. See IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997). The National Toxicology

Program (NTP) classifies respirable crystalline silica as "Known to be a human carcinogen" (NTP 9th Report on Carcinogens, 2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Other Information: See "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not classified
Carcinogenicity:	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not classified
Reproductive/Developmental Toxicity:	Not classified

SECTION 12 — ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air):	Not determined
Persistence/Degradability:	Not determined
Bio-accumulation:	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Chemical Fate Information:	Not determined
Other Information:	Not applicable

SECTION 13 — DISPOSAL CONSIDERATIONS

Disposal Method:	If product should become a waste dispose in a licensed landfill according to federal, state and local regulations.
Contaminated Packaging:	Follow all applicable national or local regulations.

SECTION 14 — TRANSPORT INFORMATION

Land Transportation

DOT – Not regulated as dangerous goods

Canadian TDG – Not regulated as dangerous goods

ADR – Not regulated as dangerous goods

Air Transportation

ICAO/IATA – Not regulated as dangerous goods

Sea Transportation

IMDG – Not regulated as dangerous goods

Other Transportation Information

Labels: None

SECTION 15 — REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311, 312) Hazard Class	Chronic Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	This product contains crystalline silica (respirable) which is a substance known to the State of California to cause cancer.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory or are exempt.
WHMIS Hazard Class	This product contains crystalline silica (respirable) and is classified as a Class D, Division 2, Subdivision A substance.

SECTION 16 — OTHER INFORMATION

Prepared	03/18/2015
Last Revision	04/09/2018

DISCLAIMER

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.

HYDROGEL® PLUS

Product Information

Description

HYDROGEL® PLUS is a High Performance Bentonite with a unique formula making it a very effective viscosifier. This premium grade beneficiated Wyoming Bentonite is specifically designed for use with mud recycling systems on large HDD Bores. **HYDROGEL® PLUS** BENTONITE is an efficient viscosifier, performs well in a variety of water qualities, successfully reduces application rates, mixes quickly and produces a durable long lasting drilling fluid.

Characteristics

High Yielding Bentonite Viscosifier

- 185 to 200 barrel yield
- Mixes rapidly for fast hydration
- Carries cuttings in mud with lower solids content
- Enhances fluid loss characteristics; reduces seeping into permeable formations
- Assists in bore hole stabilization
- Helps eliminate loss circulation conditions
- Improves mud recycling capabilities

Application

Always adjust make-up water in tank to a pH of 8 to 9 before adding bentonite and/or polymer. Public water supplies often have a pH of only 6.5 to 7. Start by adding 1 lb. of soda ash to 1000 gallons, add more as required to maintain a pH of 8 to 9. Add **HYDROGEL® PLUS** BENTONITE to reach the desired initial funnel viscosity, then add **UNI-DRILL®** liquid polymer for final desired funnel viscosity. In most cases begin at a 40 to 45 second initial viscosity, then add **UNI-DRILL®** to bring the viscosity up to 45 to 50 seconds. Below are more specific mixing instructions for various drilling conditions using a 1000-gallon mixing tank.

CLAY – Soft or Hard *(You want lower viscosity and lower fluid loss.)*	
Soda Ash	Add about 1 lb to get pH level of 8 - 9
HYDROGEL® PLUS	Add 2 +/- bag for funnel viscosity of 30-35 seconds
UNI-DRILL®	Add 9 - 10 quarts to bring final viscosity to 40-45 seconds
SAND – Wet or Dry *(You want higher funnel viscosity and moderate fluid loss.)*	
Soda Ash	Add about 1 lb to get pH level of 8 - 9
HYDROGEL® PLUS	Add 3 - 4 +/- bags for funnel viscosity of 45-55 seconds
UNI-DRILL®	Add 5 - 7 quarts to bring funnel viscosity to 55-65 seconds
UNKNOWN or MEDIUM Soils *(You want moderate viscosity and moderate fluid loss.)*	
Soda Ash	Add about 1 lb to get pH level of 8 - 9
HYDROGEL® PLUS	Add 3 bags for funnel viscosity of 35-40 seconds
UNI-DRILL®	Add 13 quarts to bring funnel viscosity to 45-55

Packaging

HYDROGEL® PLUS is packaged in 50 pound, multi-walled paper bags.

WYO-BEN, INC., Billings, Montana 800.548.7055 406.652.6351 **www.wyoben.com**

Pac LV/R

SECTION 1. IDENTIFICATION

Product Identifier	Pac LV/R
Other Means of Identification	Polyanionic Cellulose
Other Identification	PAC
Product Family	Fluid Loss Control Additive
Recommended Use	Drilling Mud Additive.
Supplier	Bri-Chem Supply Corp, 5151 Bannock Street Unit 5, Denver, CO, 80216, 303-722-1681, www.brichemsupplycorp.com
Emergency Phone No.	ChemTrec, (800) 424-9300, 24/7

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Aquatic hazard (Acute) - Category 3

GHS Label Elements

Hazard Statement(s):
Harmful to aquatic life.
Precautionary Statement(s):
Avoid release to the environment.
Disposal:
Dispose of contents/container in accordance with local, regional, national and international regulations.
Eye: May cause eye irritation.
Skin: May cause skin irritation.
Ingestion: May cause irritation of the digestive tract.
Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.
Chronic:
Carcinogenicity:IARC, NTP, ACGIH, OSHA and CA Prop 65 do not list Polyanionic Cellulose (PAC) as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Cellulose, carboxymethyl ether, sodium salt	9004-32-4		

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Skin Contact

Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Eye Contact

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

Ingestion

If swallowed, get medical aid immediately.Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

First-aid Comments

If exposed or concerned, see a doctor for medical advice.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Specific Hazards Arising from the Chemical

Material will not burn unless preheated.

Special Protective Equipment and Precautions for Fire-fighters

Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
do not release runoff from fire control methods to sewers or waterways. Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face-piece operated in pressure-demand or positive-pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Use the Personal Protective Equipment as listed in Section 8.

Environmental Precautions

It is good practice to prevent releases into the environment.

Methods and Materials for Containment and Cleaning Up

Use appropriate safety equipment. Stop or reduce leak if safe to do so. Avoid generating dust. Shovel, sweep, 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

Precautions for Safe Handling

Only use where there is adequate ventilation. Avoid generating dusts. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment if contact is unavoidable. Discard contaminated clothing and shoes or thoroughly clean before re-use.
It is good practice to: avoid breathing product, avoid skin and eye contact and wash hands after handling.

Conditions for Safe Storage

Store in an area that is cool, dry, and well-ventilated. Keep container closed when not in use. Use good housekeeping in storage and use areas to prevent accumulating of dust in work areas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respirable dust 5 mg/m3 total dust 15 mg/m3.

Appropriate Engineering Controls

Use process enclosures, local exhaust ventilation or other engineering controls to keep dust concentrations low and to reduce potential exposure.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear impervious protective clothing and boots as required to prevent contact.

Respiratory Protection

Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulation (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operation (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. WARNING! AIR-PURIFYING RESPIRATORS DO NOT PROTECT WORKERS IN OXYGEN-DEFICIENT ATMOSPHERES. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Beige powder.
Odour	Odourless
pH	6.5 - 8.5
Melting Point/Freezing Point	274 ºC (525 ºF) (melting); Not available (freezing)
Initial Boiling Point/Range	Not available
Evaporation Rate	Not available
Vapour Density (air = 1)	1.5
Relative Density (water = 1)	1.6
Solubility	Soluble in water
Decomposition Temperature	Not available
Viscosity	Not available (kinematic)

Other Information

Physical State	Solid
Molecular Formula	Not available
Molecular Weight	Not available

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability

Polyanionic Cellulose (PAC) is stable at room temperature in closed container under normal storage and handling conditions.

Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Ignition sources, electrical sparks, exposure to flame, heat.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide.

SECTION 11. TOXICOLOGICAL INFORMATION

Skin Corrosion/Irritation

Not irritating.
Contact with skin is not expected to cause prolonged or significant irritation.

Serious Eye Damage/Irritation

May cause slight irritation as a "foreign object". Tearing, blinking, and mild temporary pain may occur as particles are rinsed from the eye by tears.
Not expected to cause prolonged or significant eye irritation. Material is dusty and may scratch the surface of the eye.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause irritation of the nose, throat and respiratory passages.
Dust may produce mechanical irritation to the mucous membranes of the eyes, nose, throat, and upper respiratory tract.

Skin Absorption

Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion

Not harmful.
Not expected to be harmful if swallowed.

No information was located for: STOT (Specific Target Organ Toxicity) - Repeated Exposure, Carcinogenicity, Development of Offspring, Sexual Function and Fertility, Germ Cell Mutagenicity, Interactive Effects

SECTION 12. ECOLOGICAL INFORMATION

No ecotoxicity or environmental fate data available.

Toxicity

Toxicity to fish LC50-Oncorhynchus mykiss (rainbow trout) - 100 - 1,000 mg/l - 96 H. Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia (water flea) - 87.26 mg/l - 48 h.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

SECTION 14. TRANSPORT INFORMATION

Not regulated under US DOT Regulations.

Special Precautions for User Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

WHMIS Classification

Not a WHMIS controlled product.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by the Controlled Products Regulations.

Custom Regulatory 1

SARA 302 Components:
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:
This material does not contain any chemical components with known CAS numbers that exceed the threshold (DE Minimis) reporting levels established by SARA Title III, Section 313.

Custom Regulatory 2

Massachusetts Right to Know Components:

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components:
Carboxymethlcellulose sodium salt.

New Jersey Right To Know components:
Carboxymethylcellulose sodium salt.

California Prop. 65 Components:
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16. OTHER INFORMATION

SDS Prepared By Bri-Chem Supply Corp

Disclaimer This Health and Safety information is correct to the best of our knowledge and belief at the date of its publication, but we cannot accept liability for any loss, injury or damage which may result from its use. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as guidance for safe handling, storage, and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment. Should further information be required, this can be obtained through the sales office whose address is at the top of this data sheet.

Safety Data Sheet
Lubra-Star Plus

SDS Revision Date: 02/21/2017

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Identity	Lubra-Star Plus
Alternate Names	Chemical family: Blend

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use	See Technical Data Sheet.
Application Method	See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name	Drilling Mud Direct 6 Inverness Court East, Suite 130 Englewood, Colorado 80112, USA
Emergency	
CHEMTREC (USA)	(800) 424-9300
24 hour Emergency Telephone No.	International +1-703-527-3887
Customer Service: Drilling Mud Direct	(720) 489-0300

2. Hazard identification of the product

2.1. Classification of the substance or mixture

No applicable GHS categories.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

No applicable GHS categories.

[Prevention]:
No GHS prevention statements
[Response]:
No GHS response statements
[Storage]:
No GHS storage statements
[Disposal]:
No GHS disposal statements

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Fatty acid **CAS Number: 0061790-12-3**	**Proprietary**	**Not Classified**	**[1]**
Proprietary **CAS Number: 0090622-46-1**	**Proprietary**	**Asp. Tox. 1;H304**	**[1]**

[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.
[3] PBT-substance or vPvB-substance.
*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion Get Medical attention immediately. If swallowed, do not induce vomiting. If person is fully conscious, give water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to help prevent aspiration.

4.2. Most important symptoms and effects, both acute and delayed

Overview Inhalation: Liquid, no dust is generated in normal use.
Skin: May be irritating to the skin with prolonged contact.
Eye: 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. Exposure to solvent vapor concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage. See section 2 for further details.

5. Fire-fighting measures

5.1. Extinguishing media

Dry chemical, foam, carbon dioxide and water fog.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: High temperatures and fires may produce such toxic substances as carbon monoxide and carbon dioxide.

5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water ways.

ERG Guide No. ----

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapor levels are below the Lower Explosive Limit before re-entering.

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Collect and place in suitable container for reuse or disposal.

7. Handling and storage

7.1. Precautions for safe handling

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Keep from freezing, store in a cool dry place.
Handle containers carefully to prevent damage and spillage or accumulation of dust.

Incompatible materials: Strong oxidizing agents and acids.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0061790-12-3	Fatty acid	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0090622-46-1	Proprietary	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0061790-12-3	Fatty acid	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0090622-46-1	Proprietary	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.

Eyes Wear safety glasses or googles with side shields. Maintain eye wash station in work area.

Skin Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. All parts of the body should be washed after contact.

Engineering Controls Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Brown/Black Liquid
Odor	None
Odor threshold	Not Measured

pH	6.7
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	> 212F
Flash Point	> 600F
Evaporation rate (Ether = 1)	Not Applicable
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	Not Measured
Vapor Density	Not Applicable
Specific Gravity	0.9005-0.9305 g/cm3
Solubility in Water	Appreciable
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Excessive heat and open flame.

10.5. Incompatible materials

Strong oxidizing agents and acids.

10.6. Hazardous decomposition products

High temperatures and fires may produce such toxic substances as carbon monoxide and carbon dioxide.

11. Toxicological information

Acute toxicity

Exposure to solvent vapor concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse

effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr	Inhalation Gas LD50, ppm
Fatty acid - (61790-12-3)	3,200.00, Rat - Category: 5	No data available	No data available	No data available	No data available
Proprietary (90622-46-1)	No data available	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Fatty acid - (61790-12-3)	Not Available	Not Available	Not Available

Proprietary (90622-46-1)	Not Available	Not Available	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable	Not Regulated	Not Regulated
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	**DOT Hazard Class:** Not Applicable **DOT Label:** ---	**IMDG:** Not Applicable **Sub Class:** Not Applicable	**Air Class:** Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable

14.5. Environmental hazards

IMDG Marine Pollutant: No

14.6. Special precautions for user

No further information

15. Regulatory information

Regulatory Overview	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.
Toxic Substance Control Act (TSCA)	All components of this material are either listed or exempt from listing on the TSCA Inventory.
WHMIS Classification	Not Regulated
US EPA Tier II Hazards	**Fire:** No
	Sudden Release of Pressure: No
	Reactive: No
	Immediate (Acute): No
	Delayed (Chronic): No

EPCRA 311/312 Chemicals and RQs:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

N.J. RTK Substances (>1%) :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Penn RTK Substances (>1%):

Edible oil

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H304 May be fatal if swallowed and enters airways.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

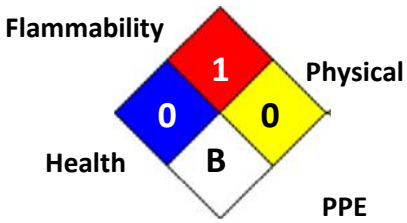
The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and

handling of the product in compliance with applicable Federal, State and local law and regulations. Drilling Mud Direct makes no warranty of any kind, express or implied, concerning the accuracy of completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. Drilling Mud Direct will not be liable for claims relating to any use of this product.

Emergency Overview:

Risk Classification System:

HEALTH	**0**
FLAMMABILITY	**1**
PHYSICAL	**0**
PPE	**B**



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LUBRA-STAR PLUS

LUBRA-STAR PLUS is an ecologically friendly drilling fluid lubricant and shale control additive for water based mud systems. It is based on oleo chemicals, which are derived from natural oils and fats, and is 100% biodegradable.

Application

Improved lubricity results in torque and drag reduction allowing faster, deeper and highly deviated drilling. LUBRA-STAR PLUS is effective in lateral drilling operations such as Horizontal Directional Drilling (HDD) and in mining coring operations where rate of penetration improvements and hole stability are required.

Advantages

- Improves lubricity
- Easily disperses in WBM
- Does not affect mud rheology
- Improves API filtration properties
- Compatible in arctic drilling conditions and is thermally stable to + 300 F

Typical Usages

Typical Amounts of LUBRA-STAR PLUS Added to freshwater	
Drilling Application	**% by volume**
Torque and drag reduction	0.5 – 1
To control most shale problems	0.5 – 2
LUBRA-STAR PLUS can be spotted in its concentrated form across a zone where drill pipe is stuck. Sufficient soaking time should be allowed while tension and torque is applied to free pipe	

Typical Properties

Physical Appearance	Liquid, dark
Specific Gravity	0.9
pH (in water)	6.7
Solubility (in water)	Highly dispersible

Packaging

LUBRA-STAR PLUS is packaged in 5 gallon (18.9L) buckets