

STATE OF
COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Notice of Deficiencies / P-2021-016 / Wasterock Exploration Core Drilling

DPollock@nedmining.com <DPollock@nedmining.com>
To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>
Cc: smuller@nedmining.com

Wed, Sep 15, 2021 at 10:02 AM

Amy,

Attached, please find a revised cover letter for P-2021-016. Also, below is a link to the revised NOI application (file is too large to email). Please let me know if you are able to access the file and if you need any original documents sent to your attention.

 https://novametallix-my.sharepoint.com/:f:/p/dpollock/EqpZR_wqi15BiSTUifP2Hh0BXvLT5Ei_khzZXInEwrNdOg?e=qMLkQV

Thank you,
Daniel Pollock

From: Eschberger - DNR, Amy <amy.eschberger@state.co.us>
Sent: Friday, September 10, 2021 10:28 AM
To: smuller@nedmining.com
Cc: Daniel V. Pollock <DPollock@nedmining.com>; Richard Mittasch <rmittasch@nedmining.com>
Subject: Notice of Deficiencies / P-2021-016 / Wasterock Exploration Core Drilling

Hello Mr. Muller,

[Quoted text hidden]



Revised GIR Silver Point-Caribou Wasterock NOI Transmittal Letter 14Sep21.pdf
150K



Ms Amy Eschberger
Environmental Protection Specialist
Department of Reclamation and Mine Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Resubmittal Notice of Intent to Conduct Prospecting Operations for Hard Rock/Metal Mines Application

Dear Ms. Eschberger:

Attached is a revised version of the Silver Point and Caribou Wasterock station application that addresses the deficiencies noted by you in your transmittal letter of September 10 to Sean Muller of GIR. Please note that the prior transmittal letter had erroneous information that we accidentally included, and this transmittal letter contains the correct summation and supersedes that prior letter. Per your letter of the 10th, we are including the entire text with appendices in this resubmittal.

Key aspects of this Notice of Intent (NOI) are as follows:

- There will be no water or sediment discharge at the drill site. Water and sediment generated from the core drilling will be isolated in a portable mud-pit and then sent to a centrifuge to recycle the water and to accumulate the fines for off-site disposal.
- All water used on the site will be hauled from a lime treated pond that is monitored for discharge into Coon Track Creek proximal to the Idaho Tunnel and nowhere near the drill station.
- The minimum amount of drill make-up water will be hauled to replenish storage tanks that will be temporarily erected at the drill station in order to minimize traffic during daylight hours when the recreational use is heaviest.
- The drill pad footprint will be approximately 80 by 100 feet or 0.184 acres
- Access roads to each drill station will not require up-grading;
- Neither drill station will require excavation for site preparation as these are relatively flat and lie atop wasterock with no A or B soil profile and very sparse vegetation;
- In both instances, berm material is available locally from adjacent wasterock piles and upon completion of drilling will be spread evenly across the drill pad area
- Due to the nature of the wasterock sites and lack of existing organics in the soil, no



reseeding will be done due to the unlikelihood of success

- All plugging and abandonment will be done in accordance with State Guidelines and coordination with the State Engineer and guidelines of cementation to the casing top.
- Permanent (re: cemented in) casing will be installed the entire thickness of the wasterock and keyed 5 feet further in the bedrock to inhibit any potential for commingling of shallow perched waters with any water encountered in bedrock.

Please note that we have added the following Appendices to this NOI:

- Appendix C1 – Silver Point Photos
- Appendix C2 – Caribou Photos
- Appendix D1 – Silver Point Vegetation
- Appendix D2 – Caribou Vegetation
- Appendix E - Aardvark Agencies to GIR General Warranty Deed

An original copy has been overnighted to your attention.

Feel free to contact us by phone or email should you have any questions or require further clarification.

Daniel Pollock
Grand Island Resources, LLC
Regulations and Permitting
720.207.2154 – Office
312.342.6145 – Cell
dpollock@nedmining.com



Form 2 (Public File)
NOTICE OF INTENT TO CONDUCT PROSPECTING OPERATIONS
FOR HARD ROCK/METAL MINES

CHECK ONE:

- ☐ **There is an NOI Number Already Assigned to this Operation** (Please reference the file number assigned to this operation) **NOI # P-** -
- ☐ **New NOI**
- ☐ **Modification** to an Existing NOI (Provide for Modifications to an existing NOI) **NOI# P-** -

GENERAL OPERATION INFORMATION

Type or print clearly, in the space provided, ALL information described below.

I. GENERAL INFORMATION

1. DATE NOI RECEIVED BY THE DIVISION:

(office use only)

2. PROJECT NAME: _____

3. PROSPECTOR: _____ **PERSON MLRB SHOULD CONTACT:** _____

Name

Name

Title

Title

Company Name

Company Name



Street

P.O. Box

City, State, Zip
()

Telephone
()

Street

P.O. Box

City, State, Zip
()

Telephone
()

~~Fax~~ Cell

~~Fax~~ Cell

4. **APPLICATION FEE: \$86.** (NOIs require an **\$86** fee which must accompany this notice or it cannot be processed by the Division).

5.

LOCATION INFORMATION:

County:

Principal Meridian (check one):

<input type="checkbox"/> 6 th (Colorado)	<input type="checkbox"/> 10 th (New Mexico)	<input type="checkbox"/> Ute
Section (write number) <input type="text"/>	TOWNSHIP <input type="text"/>	N <input type="text"/> S <input type="text"/>
RANGE <input type="text"/> E <input type="text"/> W <input type="text"/>		

QUARTER SECTION (check one):

NE ☐ NW ☐ SE ☐ SW ☐

QUARTER/QUARTER SECTION (check one):

NE ☐ NW ☐ SE ☐ SW ☐

Silver Point - NE1/4, NE1/4 Sec 8

Caribou - NW1/4, NE1/4 Sec 8

GENERAL DESCRIPTION: (the number of miles and direction to the nearest town and the approximate elevation):

NOTE: Supply longitude and latitude or UTM coordinates if lands have not been surveyed or as supplemental information to this NOI. GPS measurements will be acceptable for this purpose:

Silver Point Wasterock

Caribou Wasterock

Lat: _____ Lat: _____

Long: _____ Long: _____

6. LAND OWNERSHIP:

☐ Private ☐ Public Domain (BLM) ☐ National Forest (USFS)

☐ State ☐ State Sovereign Lands ☐ Other (please describe)

If prospecting is located on BLM or USFS land the remaining section must be completed, otherwise go to section II Maps & Drawings

7. PROSPECTING ON BUREAU OF LAND MANAGEMENT (BLM) LAND AND U.S. FOREST SERVICE (USFS) LAND

The Division and the BLM/USFS have entered into cooperative agreements that eliminate the need for a prospector to post a financial warranty with each agency and allow them to coordinate the review of the NOI in order to minimize administrative processing time and effort.

A. CLAIMANT:

Name _____

Address _____

City, State, Zip _____

Telephone () _____

Fax () _____

B. SITE/CLAIM INFORMATION:

List names, serial numbers and provide legal description to nearest quarter-quarter section of all sites or claims (attach additional page, if necessary).

NAME	SERIAL NUMBER	LEGAL DESCRIPTION

C. LOCATION MAP: Attach a USGS 7.5 minute quad, or similar map of adequate scale, which locates the prospecting site(s).

D. Are prospect sites (e.g., drill holes, trench locations, etc.) staked on the ground? Yes ☐ No ☐

E. Specify the Land Management Agency, Address and Telephone Number:
Agency

Address

City, State, Zip

Telephone ()

F. The prospector is required to document that the NOI has been sent to the BLM or the USFS. Processing of the NOI will not begin until the prospector has submitted evidence acceptable to the Division that the NOI was sent to the BLM or USFS. Check one:

☐ Evidence of notification is attached to this NOI for BLM Land

☐ Evidence of notification is attached to this NOI for USFS Land.

☐ Other proof of notice is attached to this NOI

II. MAPS & DRAWINGS

An accurate topographic base map showing the location of the proposed project must be submitted with this notice. The prospector may submit a U.S.G.S. 7.5 minute quadrangle, or similar map of adequate scale that:

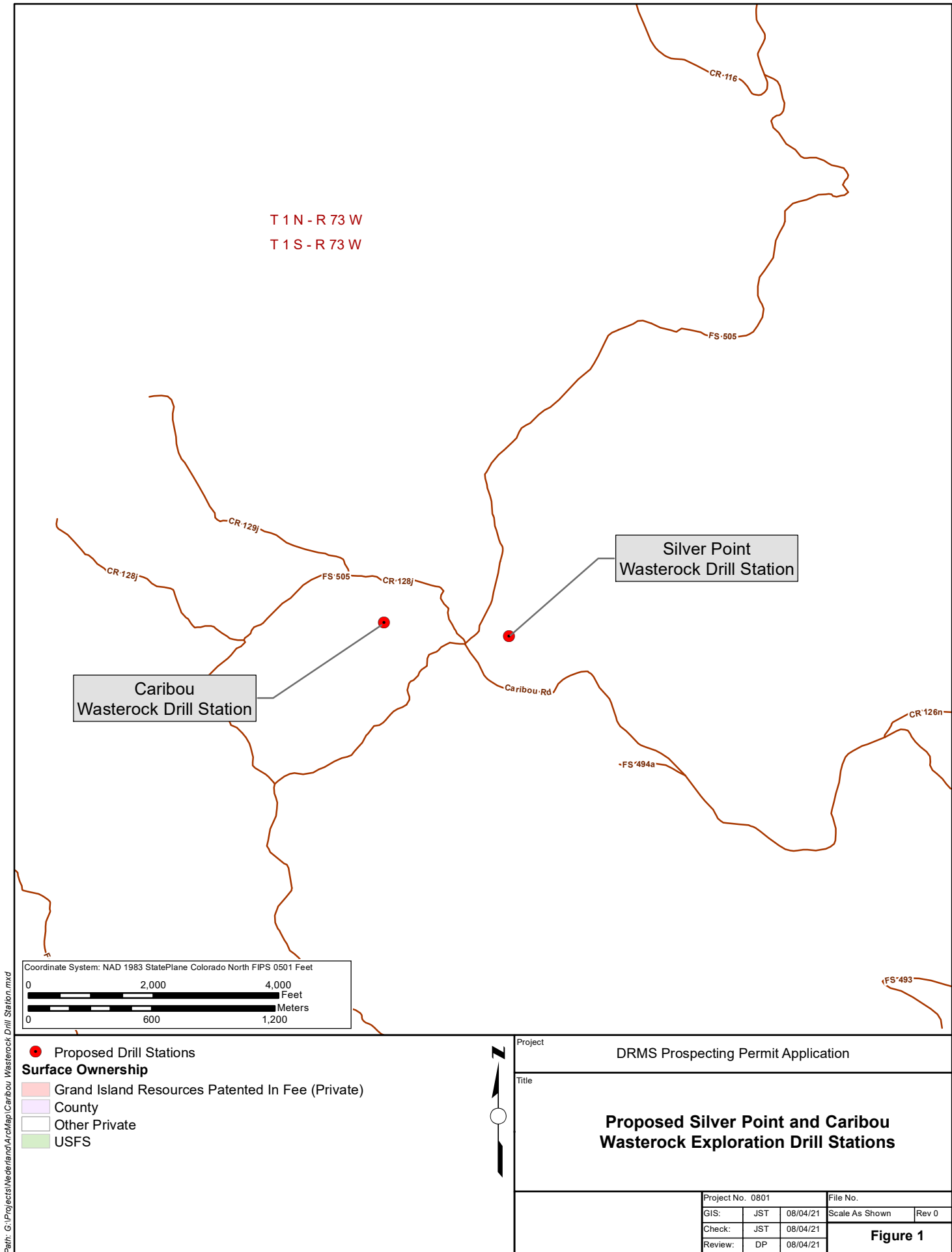
1. Identifies the proposed prospecting site(s) or activity areas involving surface disturbance. Activity areas include all drill holes, mud pits, excavations, trenches, adits, shafts, tunnels, rock dumps, stockpiles, impoundments and prospecting roads, and
2. Includes sufficient detail to identify and locate known prospecting features and facilities that may be affected and those that are not anticipated to be affected. This includes the location of all drill holes, mud pits, excavations, trenches, adits, shafts, tunnels, rock dumps, stockpiles, impoundments and prospecting roads. Color photographs, adequately labeled (including date, orientation and location), of the prospecting site may be used to fulfill this requirement if included with the NOI submittal.

III. PROJECT DESCRIPTION

1. Mineral(s) and/or Resource(s) being Investigated: _____
2. Estimated dates of commencement and completion: Commencement: _____ / ____ / ____
Completion _____ / ____ / ____
3. Amount of material (specify units) to be extracted, moved or proposed to be moved: _____ Units _____

Identify the type or method of prospecting proposed and quantity (place an "X")

- | | | |
|-----------------------------------|---------------------------------------|---|
| <input type="checkbox"/> Cuts | <input type="checkbox"/> Pits | <input type="checkbox"/> Trenches |
| <input type="checkbox"/> Shafts | <input type="checkbox"/> Tunnels | <input type="checkbox"/> Adits |
| <input type="checkbox"/> Declines | <input type="checkbox"/> Air Drilling | <input type="checkbox"/> Fluid Drilling |
| <input type="checkbox"/> Drilling | | |





Disturbed Area is
about 8,000 sq. feet for
0.184 acres

← Access to Drill Pad

Project

Title

“Disturbance Footprint” for Silver Point Waste Rock Drill Pad

Figure 2a



GRAND ISLAND
RESOURCES

Project No. 0801

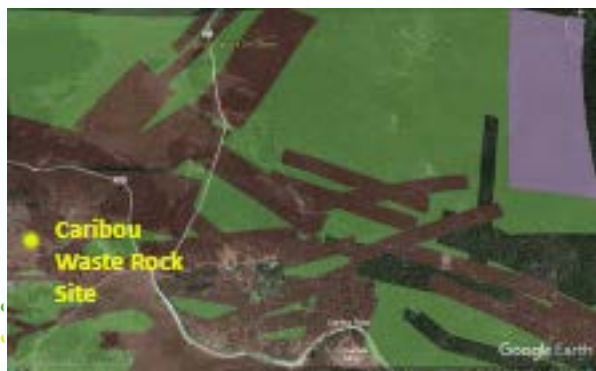
File No.

GIS: JST 04/22/21

Scale As Shown

Rev 0

Check: JST 04/22/21



Disturbed Area is
about 8,000 sq. feet for
0.184 acres

← Access to Drill Pad

Project

Title

“Disturbance Footprint” for Caribou Waste Rock Drill Pad

Figure 2b



GRAND ISLAND
RESOURCES

Project No. 0801

File No.

GIS:

JST

04/22/21

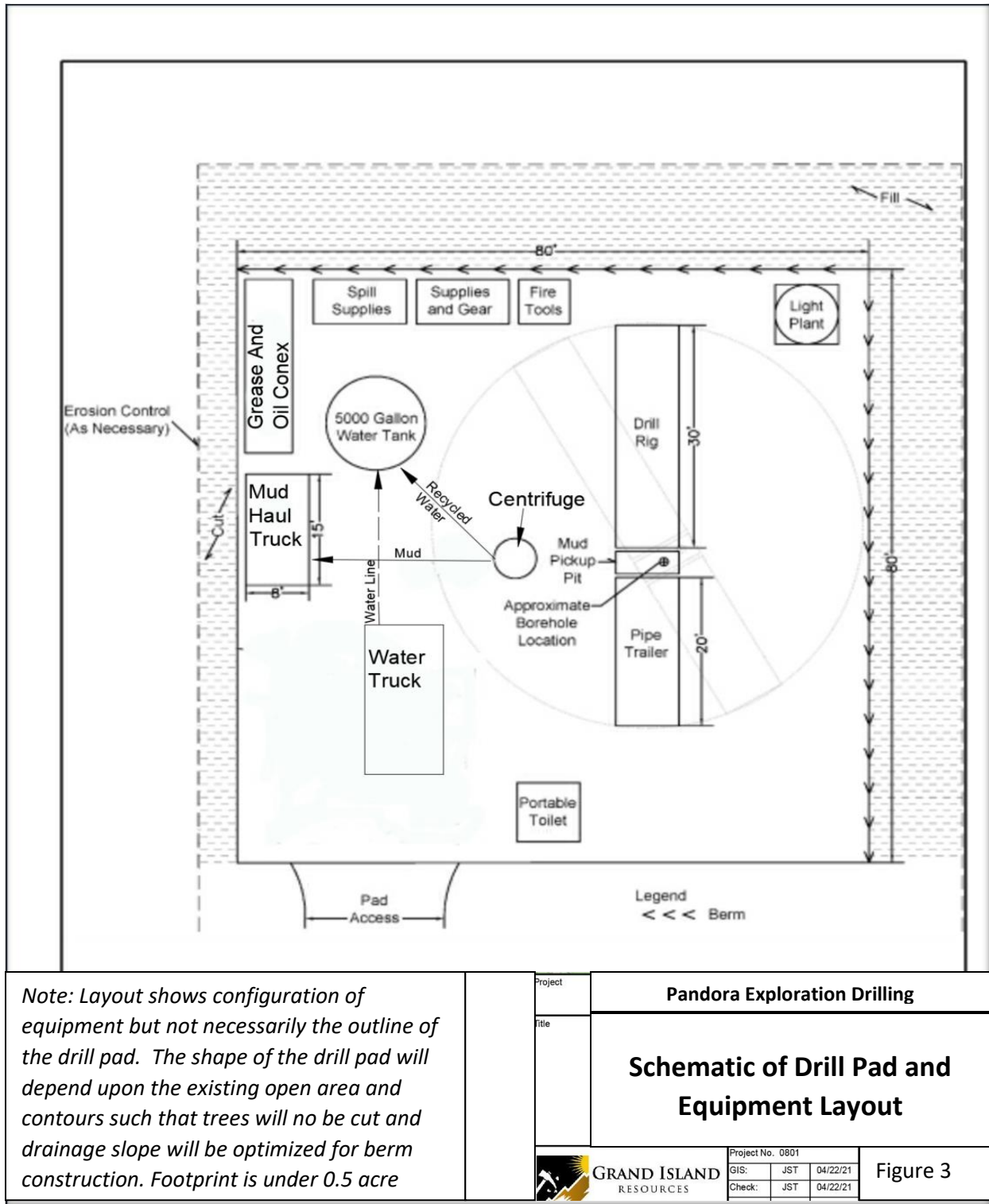
Scale As Shown

Rev 0

Check:

JST

04/22/21



5. Describe proposed surface excavation or other land disturbance, including roads, pits, trenches, waste piles, drill pads and collar areas of underground workings, ponds, etc.

6. Proposed Disturbance (approximate) Describe the proposed drilling to be conducted, including anticipated number of holes, diameter, depth, location, etc. Submit additional pages if necessary:

A. Drill Pads:

Quantity	Average Width (ft)	Average Length (ft)
_____	_____	_____

B. Drill Holes:

Quantity	Depth (ft)	Diameter (in)
_____	_____	_____

C. Mud Pits

Quantity	Average Width (ft)	Average Length (ft)	Average Depth (ft)
_____	_____	_____	_____

- D. Described proposed underground work, including reopening of old workings, advancement of adits or shafts, trenches, pits, cuts, rock dumps, or other types of disturbance, describe type, quantity and general dimensions:

E. Other Disturbances (please describe)

F. Indicate Chemicals and Fuels used or stored on site. List type, quantity and method to store.

G. New Roads:

	Length (ft):	_____	Width (ft):	_____
Significantly Upgraded Roads	Length (ft):	_____	Width (ft):	_____

Are culverts or other crossings proposed? If so, please describe:

H. Total project area to be disturbed (acres) _____

I. Describe the equipment to be used for the prospecting operations:

J. Describe and locate any structures to be constructed (i.e. stockpiles, ponds, impoundments):

K. Describe anticipated relationship to surface water and groundwater (proximity to streams, penetration of ground water aquifers):

IV. OPERATION AND RECLAMATION MEASURES:

1. The Board suggests that a photographic record of the pre-prospecting and post-prospecting conditions be kept by the prospector. These photos should be taken from the same location and by the same method to clearly show the pre-prospecting condition of the land and the reclamation efforts. Upon completion of reclamation and request for bond or surety release, the Board may consider the photos as evidence of adequate reclamation, and thus, be able to act more quickly on the request for release.
2. Provide a description of the native vegetation of the area to be disturbed, including tree, shrub, and grass communities of the area. Color photographs, sufficient to adequately represent the ecology of the site and adequately labeled (including date, orientation and location), may be used in lieu of a written description. Based on the quality of the photographs, the Division may require additional detail.

3. Describe the estimated topsoil depth and how topsoil will be salvaged, stockpiled and redistributed for the re-establishment of vegetation. Specify approximate topsoil redistribution depth:

4. Describe how drill holes will be plugged (refer to Rule 5.4 of the Rules for required abandonment procedures):

5. Describe how portals, adits, shafts, ponds, excavations, or other disturbances will be reclaimed (refer to Rule 3 and Rule 5 for specific reclamation performance standards). You may wish to contact the Division for closure specifications.

6. Describe how roads will be reclaimed or returned to their pre-prospecting (or better) condition:

7. List the seed mixture to be used in the re-establishment of vegetation. See the attached seed mixture calculation to obtain PLS/acre. For assistance with formulating seed mixtures and rates, contact the local NRCS if on private land, BLM/USFS if on public land or State Land Board if on state land.

A. Plant name and seeding rate:

Plant Name

Seeding Rate (PLS/Acre)

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
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- B. Describe the method for seed bed preparation, and application method for grass/forb seeding:

V. TERMS AND CONDITIONS FOR PROSPECTING OPERATIONS:

1. Reclamation measures shall be fulfilled in a timely manner and completed within five (5) years of completion of prospecting activities.
2. The prospecting operations described in this Notice will be conducted in such a manner as to minimize surface disturbances. In addition to the measures required in Rule 5, precautions to be taken include:
 - A. Confinement of operations to areas near existing roads or trails, where practicable. Existing roads which are to remain as permanent roads after prospecting activities are completed shall be left in a condition equal to or better than the pre-prospecting condition;
 - B. Drilling shall be conducted in such a way as to prevent cuttings and fluids from directly entering any dry or flowing stream channel. Drill cuttings must be spread to a depth no greater than one-half (1/2) inch or buried in an approved disposal pit;
 - C. Proper and timely abandonment of drill holes upon completion of drilling;
 - D. Reclamation of affected lands upon completion of operations or phases of an operation;;
 - E. Backfilling and revegetating any pits to blend in with the surrounding land surface;

- F. Safeguarding mine entries, trenches and excavations from unauthorized entry at all times;
 - G. Disposal of any trash, scrap metal, wood, machinery, and buildings;
 - H. Control of noxious weeds within the area affected by the prospector
- 3. The prospecting operations shall be conducted in such a manner as to comply with all applicable local, state and federal laws and regulations including applicable state and federal air and water quality laws and regulations.
 - 4. The prospecting operations shall be conducted so as to minimize adverse effects upon wildlife to include covering of open drill holes until properly plugged.
 - 5. During the prospecting operations, the operator will perform the necessary stabilization and reclamation work to ensure those areas affected by prospecting activities are erosionally and geotechnically stable.
 - 6. All prospecting operations shall be in compliance with the Colorado Mined Land Reclamation Act, as amended (34-32-101 et seq. C.R.S.), and all rules and regulations currently in effect or promulgated pursuant thereto. See 2 CCR 407-1, Mined Land Reclamation Board Hardrock /Metal Mining Rules.

VI. ADDITIONAL TERMS AND CONDITIONS FOR PROSPECTING ON BLM/USFS LANDS

- 1. The prospector will supply a copy of this NOI to the appropriate BLM and/or USFS office.
- 2. The prospector authorizes the MLRB to discuss the information in this Notice of Intent with the BLM and/or USFS.
- 3. If on BLM land, the prospector will complete reclamation to the standards described in 43 CFR 3809.1-3 (d) and implement reasonable measures to prevent unnecessary or undue degradation of lands during operations.

VII. FINANCIAL WARRANTY

A financial warranty must be provided for the cost of reclamation of the disturbance described in this Notice. The prospector can either file a "One Site Prospecting Financial Warranty" or a "Statewide Financial Warranty." **The financial warranty must be submitted and approved by the Division prior to entry upon lands for the purpose of prospecting.**

A One-Site Prospecting Financial Warranty is usually filed by individuals or companies where prospecting activities are limited to a single area. It must be filed in the amount of \$2,000 per acre for land to be disturbed, or such other amount as determined by the Division, based on the projected costs of reclamation. A Statewide Financial Warranty is usually filed by companies with multiple prospecting sites. It must be filed in an amount equal to the estimated cost of reclamation per acre of affected land for all anticipated sites statewide. (You may increase the statewide bond at any time in order to cover additional or expanded prospecting activities.)

VIII. SIGNATURE REQUIREMENT

Please place your initials on the line provided:

_____

I hereby verify that the foregoing information is true and accurate and commit to the reclamation of the aforementioned prospecting site as required by the Colorado Mined Reclamation Act and the rules as specified in the Hard Rock/Metal Mining Rules and Regulations and this NOI form.

I have enclosed the required permit fee.

_____

I authorize the Division to contact and copy the BLM and/or USFS on any correspondence related to the prospecting operation, if the prospecting operation is located on federal public land.

_____

I have also enclosed the appropriate reclamation surety amount or will post an amount as determined by the office, based on the projected costs of reclamation.

_____

I understand that I am not authorized to create any surface disturbance until the surety amount is posted and approved in writing from the Division of Reclamation, Mining and Safety.

_____

I accept and agree to comply with the foregoing terms and conditions and with all of the provisions of Rules 3 and 5, and C.R.S. 34-32-101.

_____

I hereby certify that concurrent with submittal of this NOI to the Division, I have sent notice to the Boards of County Commissioners in the counties where the proposed activities will occur. This notice also indicated that non-confidential information regarding the proposed activities will be available for review at the Division's website.

This form has been approved by the Mined Land Reclamation Board pursuant to section 34-32-113, C.R.S., of the Mined Land Reclamation Act. Any alteration or modification of this form shall result in voiding any NOI issued on the altered or modified form and subject the operator to cease and desist orders and civil penalties for operating without a NOI pursuant to section 34-32-123, C.R.S.

I, the undersigned, being the NOI holder or the person authorized to sign on behalf of the NOI holder, declare that the information given in this NOI form is true and correct.

SIGNATURES MUST BE IN BLUE INK

Signed and dated this _____ day of _____, _____
(date) (month) (year)

Signature of NOI holder or person authorized to sign: _____

Name (typed or printed): _____

Title/Position: _____

M:\min\oss\slb\MineralsForms\ProspectForm2
30 Aug 2017

**MATERIAL SAFETY DATA SHEET****SECTION I: IDENTIFICATION OF PRODUCT**

COMPANY: **Diversity Technologies Corp.** DATE: Dec. 9, 2008
8750- 53rd Ave. PHONE: 780-440-4923
Edmonton, AB T6E SG2 FAX: 780-469-1899

PRODUCT NAME: **BIG BEAR ROD GREASE**

PRODUCT USE: Anti-seize compound
CHEMICAL FAMILY: Mixture CAS#: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS regulated.
WORKPLACE HAZARD: Not hazardous under normal conditions of use.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME: Not TDG regulated.
TDG CLASSIFICATION: Not applicable.
UN NUMBER (PIN): Not applicable.
PACKING GROUP: Not applicable.

SECTION U: HAZARDOUS INGREDIENTS

<u>INGREDIENT</u>	<u>%(w/w)</u>	<u>CAS NUMBER</u>	<u>LC₅₀ oral-Rat</u>	<u>LC₅₀ inhal-Rat</u>	<u>ACGIH-TLV</u>
Mineral oil	70-80	64742-52-5	Not available	Not available	Not available
Barium soap	20-30	68201-19-4	Not available	Not available	Not available

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: [XX] EYE CONTACT [XX] SKIN [] INHALATION [XX] INGESTION
EYE CONTACT: May cause slight transient irritation.
SKIN CONTACT: May cause slight transient irritation.
INGESTION: No effects known.
INHALATION: Not a likely source of contact during normal use.
CARCINOGENICITY: None of the ingredients in the compound are listed by NTP, IARC or OSHA as being carcinogenic.
TERATOGENICITY: No information available.

orp. is the parent company of
lex Products, The Drillino Depot and
Drilling Supplies

REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICTY:	No ingredients listed as mutagenic.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove by wiping, or with a waterless hand cleaner. Wash with soap and water. Remove and launder contaminated clothing before re-use.
EYE CONTACT:	Immediately flush with gently flowing warm water until all residual material is removed. Remove contact lenses if present. Hold eyelids open to ensure thorough flushing. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Rinse mouth. Obtain immediate medical attention. Never give anything by mouth to an unconscious or convulsing victim.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration as required. If breathing difficulties or distress continues, obtain medical attention.

SECTIONV: PHYSICALDATA

APPEARANCE AND ODOUR:	Brown paste; bland odour	
SPECIFIC GRAVITY:	0.90@ 16°C	
BOILING POINT (° C):	371	
MELTING POINT (° C):	204	
SOLUBILITY IN WATER:	Insoluble	pH: Not available
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE :	Not available	
VAPOUR DENSITY (air= 1):	Not available	
BULK DENSITY:	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	188°C (D-92)
FLAMMABLE LIMITS:	Not available
EXTINGUISHING MEDIA:	Dry chemical, CO ₂ , foam or water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel. Remove containers from fire

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Canamara-United Supply, Hollimex Products, The Drilling Depot and
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area, or cool with water
spray, if possible.

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Westcoast Drilling Supplies**

**UNUSUAL FIRE AND
EXPLOSION HAZARDS:**

This product may burn under fire conditions.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE []
INCOMPATIBILITY	Strong oxidizers. Avoid heat, sparks and open flames.	
(CONDITIONS TO AVOID):	Contact with incompatibles or ignition sources.	
CONDITIONS OF REACTIVITY:	May release CO _x , smoke and irritating vapours when heated to decomposition.	
HAZARDOUS DECOMPOSITION PRODUCTS:	WILL NOT OCCUR [XX] MAY OCCUR []	
HAZARDOUS POLYMERIZATION:		

SECTION VIII: PREVENTATIVE MEASURES**SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION:	Not required under normal conditions of use.
VENTILATION:	Not required under normal conditions of use.
PROTECTIVE GLOVES:	Suggest neoprene or viton.
EYE PROTECTION:	Safety glasses with side-shields if required.
OTHER PROTECTIVE EQUIPMENT	Protective clothing is required to prevent contact.
(Specify):	Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with skin and eyes. Avoid ingestion. Wash thoroughly before eating, drinking or smoking. Store in cool, dry area away from incompatibles and sources of ignition. Use caution when opening unvented containers. Use in well ventilated area. Store unused material in original container.

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

Use appropriate safety equipment. Eliminate ignition sources. Scoop up excess, then wipe down the affected area and pick up residual with diatomaceous earth to prevent slipping hazard. Place contaminated material and clean up materials in approved containers for disposal.

WASTE DISPOSAL METHOD

Dispose/incinerate in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the

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time of disposal. Dispose of, or recycle, empty containers in accordance with local regulations.

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Westcoast Drilling Supplies**

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	December 9, 2008	BY:	Product safety committee
SUPERSEDES:	December 20, 2005	PHONE:	780-440-4923



Material Safety Data Sheet

DD955

Material Identification and Use

MANUFACTURER'S NAME CONTROL CHEMICAL (1989) CORPORATION
MANUFACTURER'S ADDRESS 7016 30 Street SE Calgary, Alberta, Canada, T2C 1N9
EMERGENCY PHONE NUMBER (403) 720-7044
SUPPLIER IDENTIFIER
SUPPLIER'S ADDRESS
SUPPLIER EMERGENCY PHONE NUMBER
PRODUCT IDENTIFIER DD955
PRODUCT USE Drilling Mud

Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD(50)	LC(50)
Mineral Spirits	20-40%	CAS 64742-47-8	(Oral, Rat) Over 8 ml/kg	NIE

Physical Data For Product

PHYSICAL STATE Liquid
ODOUR AND APPEARANCE Oily smell, liquid emulsion
ODOUR THRESHOLD NIE
SPECIFIC GRAVITY 0.98
VAPOUR PRESSURE NIE
VAPOUR DENSITY (air-1) NIE
EVAPORATION RATE N/E
BOILING POINT **NIE**
FREEZING POINT NIE
pH 7.0 - 9.0 (0.6% in distilled water)
DENSITY (g/ml) NIE
COEFFICIENT OF WATER/OIL DISTRIBUTION N/E

Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY Requires source of ignition, presence of air and temperature greater than flashpoint
MEANS OF EXTINCTION In case of fire use water spray, foam, dry chemical, or CO2 AVOID USE OF WATER-SLIPPERY CONDITIONS WILL OCCUR.
FLASHPOINT AND METHOD OF DETERMINATION 70 c. (C.C.)
UPPER EXPLOSION LIMIT(% BY VOL) NIE
LOWER EXPLOSION LIMIT(% BY VOL) NIE



AUTO-IGNITION TEMPERATURE.....NIE

Material Safety Data Sheet

DD955

SPECTFIC FIRST AID PROCEDURES.....FLUSH EYES WITH WATER. RINSE CONTAMINATED SKIN WITH SOAP AND WATER. IF ING ESTED, GIVE WATER. DO NOT INDUCE VOMITrNG. CALL A PHYSICIAN. IN CASE OF DISCOMFORT BY VAPORS OR DUSTS, MOVE TO A VENTLLATED AREA.

Preparation Date of Material Safety Data Sheet

PREPARED BY..... Control Chemical (1989) Corpo ratio n
PHONE NUMBER OF PREPARER(403) 720-7044
DATE PREPAREDJanuary 02, 2002

The information contained herein is based on data believed to be reliable, but is presented without guarantee or warranty and Control Chemical (1989) Corporation disclaims any liability incurred from the use thereof.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo® 400 LE SAE 15W-40

Product Use: Engine Oil

Product Number(s) : GPS222220

Company Identification

Chevron Products Company

a division of Chevron U.S.A. Inc.

6001 Bollinger Canyon Road

San Ramon, CA 94583

United States Of America

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergencies

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 - (510) 231-0623

Product Information

email : lubemsds@chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	fracture	80 - 100 %weight
Zinc alkyl dithiophosphate	68640-42-3	1 - 2 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

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SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION :

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Min)

Autoignition : No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion on Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information : Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Material Safety Data Sheet

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted. Physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.87 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Volatile Organic

Compounds (VOC) : 1.1 %weight

Viscosity: 6.6 est @ 100°C (212°F) (Min)

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization : Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation : The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization : The skin sensitization hazard is based on evaluation of data for similar materials or product components. No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion

or



Product Safety Data Sheet

- product does not occur. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

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. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE

Ready Biodegradability: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 = IARC Group 1	03 = EPCRA 313
01-2 A = IARC Group 2A	04 = CA Proposition 65
01-2B = IARC Group 2B	05 = MA RTK
02 = NTP Carcinogen	06 = NJ RTK
	07 = PA RTK

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

Zinc alkyl dithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required.

I'Aakrial Safety Data Sheet

J All other components are listed or exempted from listing on EINECS.

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et seq., the product is to be identified as follows: PETROLEUM OIL {Motor oil}

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

{0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Inde recommendation,•- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association {NFPA} or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category: ENGINE OIL 1 - ENG1

REVISION STATEMENT: This is a new Material Safety Data Sheet

Revision Date: July 24, 2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TVVA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstrad Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association {USA}
DOT - Department of Transoortation {USA}	NTP - National Toxicology Program {USA}
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard {2400.1} by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.	

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.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: EZ-MUD® PLUS

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD® PLUS
Synonyms: None
Chemical Family: Blend
Application: Additive
Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000
Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
hydrotreated light petroleum distillate	742-47-8	10-30%	100 mg/m ³	not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated shoes and discard.

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

Ingestion Get medical attention{ If vomiting occurs, keep head lower than hips to prevent aspiration.

Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not DeterminedMin: > 200
Flash Point/Range (C):	Not DeterminedMin: > 93
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits In Air • Lower(%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition In fire may produce toxic **gases**. Use water spray to cool fire exposed surfaces.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0

HMIS Ratings: Flammability 1, Reactivity 0, Health 2

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 12 months.

ii. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Organic vapor respirator with a dust/mist filter.

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

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

Other Precautions Eyewash fountains and safety showers must be easily accessible.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Liquid

Color:

VWhite to gray

Odor:

Mild hydrocarbon

\$. PHYSICAL AND CHEMICAL PROPERTIES

pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.0
Density @ 20 C (lbs/gallon):	8.3
Bulk Density @ 20 C (lbs/ft ³):	Not Determined
Boiling Point/Range (F):	347
Boiling Point/Range (C):	175
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	70
Evaporation Rate (Butyl Acetate=1):	< 1
Solubility In Water (g/100ml):	Partially soluble
Solubility In Solvents (g/100ml):	Not Determined
VOES (lbs/gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

H1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.
Aggravated Medical Conditions	Lung disorders.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.

Other Information: None known.

Toxicity Tests

Oral Toxicity: Not determined
Dermal Toxicity: Not determined
Inhalation Toxicity: Not determined
Primary Irritation Effect: Not determined
Carcinogenicity: Not determined
Genotoxicity: Not determined
Reproductive / Developmental Toxicity: Not determined

H2. 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: TLM48: 98 mg/l (Acartia tonsa)
Acute Algae Toxicity: EC50: 16.70 mg/l (Skeletonema costatum)

Chemical Fate Information Not determined

Other Information Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restrided

Sea Transportation

IMDG Not restrided

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	This produd 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 produd becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 66	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	028 Toxic Materials

116. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information	For additional information on the use of this produd, contad your local Halliburton representative.
	For questions about the Material Safety Data Sheet for this or other Halliburton produds, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

...END OF MSDS*..

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Lubricating Oil, Gear

Product Use: Gear Lubricant

Product Number(s): 9150-01-035-5393, 9150-01-035-5394, 9150-01-035-5395, 9150-01-0 5-5396

Synonyms: Lubricating Oil, Gear - 80W90 Gear Oil, Lubricating Oil, Gear - 85W140 Gear Oil

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15-C50)	Mixture	80 - 95 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

Material Safety Data Sheet

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 180 °C (356 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested

Material Safety Data Sheet

materials for protective gloves include: 4H (PE/ L), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Celling	Notation
Highly refined mineral oil (C15-C50)	ACGIH	5mg/m3	10 mg/m3	-	-
Highly refined mineral oil (C15-C50)	OSHA-1	5mg/m3			

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >371°C (699.8°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Specific Gravity: 0.88 - 0.92 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Viscosity: 13.7 est @ 100°C 212°F Min

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily bio radable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its Intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313
01-2 A=IARC Group 2A	04=CA Proposition 65
01-28=IARC Group 28	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A 34:SA-1 et seq., the product is to be identified as follows: PETROLEUM OIL (Gear oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet:
2,5,8,9,10,11,14,15,16

Revision Date: 06/05/2006

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA- National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: QUIK-GEL®

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL®

Synonyms: None

Chemical Family: Mineral

Application: Viscosifier

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Bentonite	1302-78-9	60-100%	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	1-5%	0.025mg/m ³	10mg/m ³ %SiO ₂ +2
Crystalline silica, cristobalite	14464-46-1	0-1%	0.025 mg/m ³	1/2 x 10 mg/m ³ %SiO ₂ +2
Crystalline silica, tridymite	15468-32-3	0-1%	0.05 mg/m ³	1/2 x 10 mg/m ³ %SiO ₂ +2

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

13. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! • ACUTE HEALTH HAZARD

May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

14. FIRST AID MEASURES

Inhalation

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

Skin

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

Eyes

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

Ingestion

Under normal conditions, first aid procedures are not required.

Notes to Physician

Treat symptomatically.

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits In Air - Lower(%):	Not Determined
Flammability Limits In Air - Upper (%):	Not Determined

Fire Extinguishing Media

All standard firefighting media.

Special Exposure Hazards

Not applicable.

Special Protective Equipment for Fire-Fighters

Not applicable.

NFPA Ratings:

Health 0, Flammability 0, Reactivity 0

HMIS Ratings:

Health 0*, Flammability 0, Physical Hazard 0, PPE: E

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures

None known.

Procedure for Cleaning / Absorption

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

- HANDLING AND STORAGE

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent 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. Keep from excessive heat Do not reuse empty container.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use approved Industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

Hand Protection

Normal 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.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Various
Odor:	Mild earthy
pH:	8-10
Specific Gravity @ 20 C (Water=1):	2.6
Density @20 C (lbs/gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft ³):	47.6-72.1
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Slightly soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCS (lbs/gallon):	Not Determined
Viscosity, Dynamic @20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined

ii. PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight (g/mole): Not Determined

HO. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Inhalation

Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Skin Contact May cause mechanical skin irritation.

Eye Contact May cause 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 quartz 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) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68. Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies amorphous silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney **disease**.

Other Information

For further information consult "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 determined
Carcinogenicity	Refer to <u>IARC Monograph 68. Silica, Some Silicates and Organic Fibres</u> (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

f2. ECOLOGICAL INFORMATION

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

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

h4. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

fis. REGULATORY INFORMATION

US Regulations

US TSCA Inventory

EPA SARA Title III Extremely
Hazardous Substances

EPA SARA (311,312) Hazard
Class

EPA SARA (313) Chemicals

EPA CERCLA/Superfund
Reportable Spill Quantity

EPA RCRA Hazardous Waste

Classification

California Proposition 65

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Acute Health Hazard
Chronic Health Hazard

This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

Not applicable.

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.
Canadian Regulations	
Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	02A Very Toxic Materials Crystalline silica

116. OTHER INFORMATION

The following sections have been revised since the last Issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

...,END OF MSDS*..

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Dura-Lith® Grease EP

Product Use: Grease

Product Number(s): CPS254593, CPS254595, CPS254596, CPS254597, CPS254598

Synonyms: Chevron Dura-Lith® Grease EP NLGI 0, Chevron Dura-Lith® Grease EP NLGI 00, Chevron Dura-Lith® Grease EP NLGI 000, Chevron Dura-Lith® Grease EP NLGI 1, Chevron Dura-Lith® Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS		
COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 95 %weight
Zinc dialkyldithiophosphate	68649-42-3	< 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water.

Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 200 °C (392 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:

Firefighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter confined or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gas including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 or appropriate authority.

SECTION 7 HANDLING

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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 returned to a drum reconditioner or disposed of properly.

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 workplace 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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Commodity	Agency	TWA	STEL	Celling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5mg/m3	10 mg/m3	-	-
Highly Refined mineral oil (C15 - C50)	OSHAZ-1	5ma/m3	-	-	-

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Varies depending on specification

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg@ 37.8 °C (100 °F)

Vapor Density (Air = 1): >1

Boiling Point: >260°C (500°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Melting Point: 155°C (311°F) (Min)

Viscosity : 105 cSt @ 40°C 104°F Min

SECTION 10 STABILITY**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.

Compatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

- Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NT) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- BPRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire & Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01=IARC Group 1	03=EPCRA 313
01=IARC Group 2A	04=CA Proposition 65
01-28=IARC Group 28	05=MARTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:• **CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: EINECS (European Union), ENCS (Japan), KECI (Korea). TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: DSL (Canada), IECSC (China). PICCS (Philippines).

NEWJERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMI& RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label category : GREASE 1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1,2,7,10,14-16

Revision Date: 12/05/2005

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

HALUBUATON

MATERIAL SAFETY DATA SHEET

Product Trade Name: IDP--214

Revision Date: Q6...Jan-2005

b- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: IDP-214
Synonyms: None
Chemical family: Organohydrocarbon
Application: Lubricant
Manufacturer/Supplier: Standard Drilling Fluids
Product Service Lined Halliburton Energy Services, Inc.
P.O.Box 1876
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-680-251-4335

1. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Butene, homopolymer	9003-29-6	5%	Not applicable	Not applicable
Muscovite	1318-94-1	8-10%	Not applicable	Not applicable
Talc	14807-96-8	2-10%	2 mg/m ³	15 mg/m ³
Aluminum, benzoate C16-18 fatty acids	82980-54-9	10 - 30%	Not applicable	Not applicable
Hydrotreated heavy naphthenic diluent	64742-52-6	30-50%	Not applicable	Not applicable
Hydrotreated residual petroleum oil	64742-57-0	30-50%	Not applicable	Not applicable

2. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye and skin irritation.

3. FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration. Potentially mouth-to-mouth. If breathing difficult, give oxygen. Get medical attention.

Skin: Wash with soap and water. Get medical attention if inflammation persists. Remove contaminated clothing and launder before reuse.

Eyes: In case of contact. Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention. If inflammation persists.

other Precautiona

Eyewash fountains and safety showers must be easily accessible,

HY81CAL AND CHEMICAL PROPERTIES

Physical State:	Semi-Solid
Color:	Amber to brown
Odor:	Hydrocarbon
pH:	7
Specific Gravity (Water=1):	1.00
Density @ 20°C (lbs./gallon):	8.33
Bulk Density @ 21°C (lb/ft³):	Not Determined
Boiling Point Range (F):	<600
Boiling Point Range (C):	<316
Freezing Point Range (F):	>450
Freezing Point Range (C):	>232
Vapor Pressure @ 20°C (mmHg):	Not Determined
Vapor Density (Air=1):	>5
Permeability Coefficient:	0
Evaporation Rate (Butyl Acetate=1):	<0.01
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (100ml):	Not Determined
VOCS (lbs./gallon):	Not Determined
Volatility, Dynamic @ 20°C (centipoise):	Not Determined
Viscosity, Kinematic @ 41°C (centistokes):	Not Determined
Partition-	Not Determined
Molecular Weight (g/mol):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers
Hazardous Decomposition Products	Oxides of sulfur, Carbon monoxide and carbon dioxide, Oxides of nitrogen,
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principal Routes of Exposure	Eye or skin contact, inhalation.
Inhalation	Massive Inhalation may be harmful.
Skin Contact	May cause an allergic skin reaction.
Eye Contact	May cause eye irritation.
Ingestion	Large doses may cause nausea, vomiting and diarrhea.
Aggravated Medical Conditions	None known.

Chto11lc Effect&ICarcinogenlcity	No data avalable toIndicate producl or Q)fflponenf.\$ present at greater than 1% are c;hronic health hazams.
OtherInformation	None known.

Toxicity Tests

oral Tmd'cllr. LD60: > 2000 mg/kg (Rat)

Dermal 'rcmldty: Not determinable

Inhalation TGJddlr- Not determined

Primal) brltatlan Effect: Not determined

earcinagenicity Not determined

Genotoxicity: Not determined

Reproductive Developmental Toxicity: Not determined

b2. ECOLOGICAL INFORMATION

... , (Walden SoRIAl) Not determined

Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: Not determined

Aquatic Algae Toxicity: Not determined

Chemical fate and transport Not determined

Other Information Not applicable

ff4. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging If empty container, labeling procedures and label precautions must be observed. Store away from ignition sources. Transport with all labels in place. Return for reuse or disposal according to national or local regulations.

ff4. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TDG

Not restricted

ADR Not restricted

Air Transportation

DP-214
Page 4 of 6

ICAOTATA Not restricted

Sea Transportation

IIIDG

Not restricted

Other Shipping Information

Labels:

None

REGULATOR INFORMATION

US Regulations

USTICA Inventory All components listed on inventory.

EPA SARA Title III
Hazardous Substances Not applicable

EPA SARA (311, 312) Hazard Class
Acute Health Hazard
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 For This Product Not applicable.

EPA RCRA Hazardous Waste
If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the USEPA.

California Proposition 65
All components listed do not apply to the California Proposition 65 Regulation.

Marine Pollution Law
One or more components listed.

NJ Right-to-Know Law
One or more components listed.

PA Right-to-Know Law
One or more components listed.

Canadian Regulations

Canadian DSL Inventory
Product contains one or more components not listed in inventory.

WHMIS Hazard Class
Un-Committed

OTHER INFORMATION

The following section has been revised since the last issue of this MDS
Not applicable

Additional Information
For additional information on the use of this product, contact local Halburton representative.

For questions about the Material Safety Data Sheet for this or other Halburton products, contact Chemical Compliance at 1-800-251-4335.

Disclaimer Statement

This information is furnished without warranty. expressed, implied, as to accuracy, or any. The information is obtained from various sources including the manufacturer of the product and the user. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

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1"

f.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Hydraulic Oil AW

Product Use: Hydraulic Oil

Product Number(s): CPS255673, CPS255674, CPS255675

Synonyms: Chevron AW Hydraulic Oil ISO 32, Chevron AW Hydraulic Oil ISO 46, Chevron AW Hydraulic Oil ISO 68

Company Identification

Chevron Lubricants Canada Inc.

Lubricants Chevron Canada

6975-A Pacific Circle

Mississauga, ONT L5T 2H3

Canada

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	90 - 100 %weight

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with

<https://www.cbest.chevron.com/msdsServer/controller?module=com.chevron.lubes.msds.bus.Bus.> 1/18/2009



water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove thermal material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration and intense throbbing in. Immediate treatment at a surgical center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 170 °C (338 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as a priority or as required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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, closed, and promptly returned to a drum reconditioner or disposed of properly.

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 circumstances 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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ gency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15- C50)	ACGIH	5 mg/m3	10 mg/m3	-	-

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg@37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbon solvents; insoluble in water.

Freezing Point: Not Applicable

Specific Gravity: 0.86-0.9@ 15.8°C (80.1°F)/ 15.8°C (80.1°F)

Density: 0.88 kg/l - 0.9 kg/l @ 15° C (59°F)

Volatile Organic

Compounds (VOC) : <2.1 %weight

Viscosity: 28.8 cSt@40°C (104°F) (Min)

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTMITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin **sensitization**: No product toxicology data available.

Acute **Dermal Toxicity**: LOSO: >Sg/kg (rabbit). The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: LOSO: >5 g/kg (rat) The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components. For additional information on the acute toxicity of the components, call the technical information center.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

48 hour(s) EC50: >1000 mg/l (Daphnia magna)

96 hour(s) LC50: >1000 mg/l (Oncorhynchus mykiss)

This material is not expected to be harmful to aquatic organisms.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management C.C.S.M.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TOG REGULATIONS

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1

01-2 A=IARC Group 2A

01-2B=IARC Group 2B

35=WHMIS IDL

No components of this material were found on the regulatory lists above.

1000

1000

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: OSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirements: AICS (Australia)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit. ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 06/06/2006

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 9,15

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMOG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

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.

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THE UNIVERSITY OF CHICAGO

This image shows a blank, aged, cream-colored page, likely an endpaper or flyleaf of a book. The paper has a slightly textured appearance with some faint smudges and discoloration, characteristic of old paper. A vertical crease is visible on the left side, suggesting it was once part of a bound volume. There is no text or other markings on the page.

Phone: 0610855006

This Material Safety Data Sheet has been prepared in accordance with the requirements of the U.S. Department of Labor, Occupational Safety and Health, 29 CFR 1910.1200.

15

[illegible]

that the new technology does not comply with the proposed guidelines, individualized risk assessment will be required.

2. **conclusions** have listed or exemplified your findings on **EFFECTS**

ST. LOUIS, MO. (AP) — A 261 (800) 441-1000

STIMULATED

AMFUEL
P. O. BOX 887
601 FIRESTONE DRIVE
MAGNOLIA, AR 71753

Telephone: (01)234-3381

Company Contact: GLENN D. WOODS

Emergency Contact: GLENN D. WOODS
Emergency Phone Number: (501)234-3381 7288,

SECTION #1.- IDENTIFICATION

Chemical: PU-058,

CAS Number: Not Established
Chemical Family: MIXTURE

Synonyms: ADHESIVE, ONION TANK MB

NFPA Hazard Rating - Health: 2 Moderate
- Fire: 3 High

- Reactivity: 0 Negligible
- PP: H

Special Hazards: FLAMMABLE LIQUID

SECTION #2 - CHEMICAL COMPONENTS

Component: METHYL ETHYL KETONE

CAS Number: 78-93-3

Percent of Mixture: 42.5000

OSHA TWA - 200 PPM

OSHA STEL - 300 PPM

Component: TOLUENE

CAS Number: 108-88-3

Percent of Mixture: 22.0000

OSHA TWA - 100 PPM

OSHA STEL 150 PPM

Component: VM&P NAPTHA

CAS Number: 8032-32-4

Percent of Mixture: 18.0000

OSHA TWA - 300 PPM

OSHA STEL - 400 PPM

SECTION #3 - PHYSICAL DATA

Boiling Point: 175°F 79.6°C

Proprietary & Confidential Material

SECTION #3 - PHYSICAL DATA Continued..•

Vapor Pressure: 77.5 mm Hg
Vapor Density (Air=1): 2.5
Specific Gravity: 0.8062
Solubility (H2O): 26.8
Percent Volatiles: 100
Evaporation Rate: 5.7

Appearance

L:r,QUID

Odor

KETONE ODOR

Odor Threshold: NA

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Flash Point: 23°F

Lower Explosive Limit(%): 2.0
Upper Explosive Limit(%): 11.0

Fire and Explosion Hazards

VAPORS WILL TRAVEL -A.....CONS.I.D.ERABLE DISTANCE TO A SOURCE. OF I..GNITION AND FLASH BACK. EXPLOSION MAY RESULT IF VAPORS ARE IGNITED IN A CONFINED AREA.

Extinguishing Media

WATER FOG, ALCOHOL FOAM, DRY CHEMICAL OR CO2.

Special Fire Fightfng Instructions

WEAR PROTECTIVE CLOTHING INCLUDING NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS. WEAR GOGGLES IF EYE PROTECTION NOT PROVIDED.

SECTION #5 - EXPOSURE and EFFECTS - INHALATION

Routes of Exposure - Inhalation

CAUSES CENTRAL NERVOUS SYSTEM DEPRESSION. MILD EXPOSURES CAUSE DIZZINESS, WEAKNESS, HEADACHE, NAUSEA.

Pmp1fatary & Confidential Material

SECTION #5 - EXPOSURE and EFFECTS - INHALATION Continued..

First Aid - Inhalation

REMOVE TO FRESH AIR AND PROVIDE OXYGEN. GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS- SKIN

Routes of Exposure - Skin

PROLONGED OR REPEATED LIQUID CONTACT CAN RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN SKIN IRRITATION AND DERMATITIS.

First Aid - Skin

WASH WITH SOAP AND WATER. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - EYES

Routes of Exposure - Eyes

MAY CAUSE REDNESS, TEARING, BLURRED VISION. PROLONGED CONTACT WITH LIQUID CAN RESULT IN CORNEAL BURNS.

First Aid - Eyes

IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES. GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - INGESTION

Routes of Exposure - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE

First Aid - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

SECTION #5 - MISCELLANEOUS TOXICOLOGICAL INFORMATION

MINOR EMBRYOTOXIC/FETOTOXIC EFFECTS HAVE BEEN OBSERVED IN RATS EXPOSED TO MEK BY INHALATION AT LEVELS GREATER THAN 1000 PPM FOR MOST OF THE GESTATION PERIOD. MEK MAY POTENTIATE PERIPHERAL NEUROPATHY CAUSED BY METHYL N-BUTYL KETONE OR N-HEXANE. MEK BY ITSELF HAS NOT BEEN SHOWN TO CAUSE PERIPHERAL NEUROPATHY. OVEREXPOSURE TO MEK HAS APPARENTLY BEEN FOUND TO CAUSE THE

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SECTION #5 - MISCELLANEOUS TOXICOLOGICAL INFORMATION Continued•..

FOLLOWING EFFECTS IN LAB ANIMALS: LIVER ABNORMALITIES, KIDNEY DAMAGE, LUNG DAMAGE, BRAIN DAMAGE.

SECTION #5 - HEALTH CONDITIONS AGGRAVATED BY EXPOSURE

PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS.

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: STABLE

Conditions to Avoid (Stability)

HEAT, SPARKS, FLAME AND STRONG OXIDIZING AGENTS.

Incompatible Materials

OXIDIZERS, HALOGENS

Hazardous Decomposition Products

CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS.

Hazardous Polymerization: WILL NOT OCCUR.

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

SARA Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Other Environmental Information

Steps to be Taken in The Event of Spills, Leaks, or Release

TAKE UP WITH ABSORBENT MATERIAL AND PLACE IN CONTAINER. SEAL FOR DISPOSAL.

Waste Disposal Methods

IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS REGARDING DISPOSAL.

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SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

EXPLOSION-PROOF GENERAL VENTILATION MAY HAVE TO BE SUPPLEMENTED BY LOCAL EXHAUST TO MAINTAIN CONCENTRATIONS BELOW RECOMMENDED TLVS.

Eye Protection

CHEMICAL GOGGLES.

Skin Protection

CHEMICAL RESISTANT GLOVES AND CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

Respiratory Protection

USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE.

Other Protection

AS NEEDED TO PREVENT OVEREXPOSURE.

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

Storage & Handling Conditions

--... STORE AWAY FROM SOURCES OF HEAT, FLAME AND SPARKS. MATERIAL CONTAINERS MAY BE HAZARDOUS WHEN EMPTY AND CAN CONTAIN EXPLGSLV.E VAPORS. DO NOT CUT, DRILL, GRIND, WELD OR PERFORM SIMILAR-OPERATIONS ON OR NEAR CONTAINERS. STATIC ELECTRICITY MAY ACCUMULATE AND CREATE A FIRE HAZARD. GROUND FIXED EQUIPMENT. BOND AND GROUND TRANSFER CONTAINERS AND EQUIPMENT.

SECTION #10 - SHIPPING INFORMATION

Proper Shipping Name: NA

Hazard Class: FLAMMABLE LIQUID

Subsidiary Hazard Class: NA

DOT Identification Number: NA

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Emergency Contact: GLENN"D, WOOD\$
Emerg ncy Phone Number: (501)2 4-3381 7288.

SECTION #1 -- IDENTIFICATION

Chemical: PU-059.

CAS Number: Not Established
Chemical Family: MIXTURE

Synonyms: ADHESIVE, ONION TANK MB'...

NAPA Hazard Rating - Health: 2 Moderate
- Fire: 3 High
- Reactfvity: 0 Negligible
- pp: H

Special Hazards: FLAMMABLE LIQUID

-----1 SECTION #2 - CHEMICAL COMPONENTS

Component: METHYL ETHYL KETONE
CAS Number: 78-93-3 Percent of Mixture: 43.0000
OSHA PEL TWA - 200 PPM
OSHA STEL - 300 PPM

Component: TOLUENE
CAS Number: 108-88-3 Percent of Mixture: 21.2000
OSHA PEL TWA - 100 PPM
OSHA STEL - 150 PPM

Component: VM&P NAPHTHA
CAS Number: 8032-32-4 Percent of Mixture: 17.3000
OSHA PEL TWA - 300 PPM
OSHA STEL - 400 PPM

SECTION #3 - PHYSICAL DATA

Boiling Point: 175°F 79.6°C

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SECTION #3 - PHYSICAL DATA Continued...

Vapor Pressure: 77.5 mm Hg
Vapor Density (Air=1): 2.5
Specific Gravity: 0.8062
Solubility (H2O): 26.8
Per nt Volatiles: 100
Evaporation Rate: 5.7

Appearance

L _QUID

Odor

KETONE ODOR

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Flash Point: 23°F

Lower Explosive Limit(%): 2.0
Upper Explosive Limit (%): ..11.0

Fire and Explosion Hazards

EVACUATE AREA. FIREFIGHTERS SHOULD WEAR FULL PROTECTIVE GEAR INCLUDING SELF-CONTAINED BREATHING APPARATUS. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON WATER SURFACE. COOL FIRE EXPOSED CONTAINERS-..!.0.. PREVENT RUPTURE.

Extinguishing Media

CO2, WATER FOG, FOAM, DRY CHEMICAL

Special Fire Fighting Instructions

WEAR SELF CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE" WHEN FIGHTING FIRES.

SECTION #5 - EXPOSURE and EFFECTS - INHALATION

Routes of Exposure - Inhalation

MAY CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, NAUSEA, HEADACHE.

First Aid - Inhalation

REMOVE TO FRESH AIR. GET MEDICAL ATTENTION.

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SECTION #5 - EXPOSURE and EFFECTS - SKIN

Routes of Exposure - Skin

MODERATELY IRRITATING. MAY CAUSE DRYING AND DEFATTING.

First Aid - Skin

WASH AREA THOROUGHLY. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - EYES

Routes of Exposure - Eyes

CAN CAUSE SEVERE IRRITATION, TEARING, BLURRED VISION.

First Aid - Eyes

FLUSH WITH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - INGESTION

Routes of Exposure - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

First Aid - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

SECTION #5 - HEALTH CONDITIONS AGGRAVATED BY EXPOSURE

PREEXISTING RESPIRATORY, EYE AND SKIN DISORDERS.

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: STABLE

Conditions to Avoid (Stability)

NONE

Incompatible Materials

STRONG OXIDIZING AGENTS

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SECTION #6 - REACTIVITY & POLYMERIZATION Continued...

Hazardous Decomposition Products

CARBON MONOXIDE; VARIOUS UNIDENTIFIED HYDROCARBONS

conditions to Avoid (Polymerization)

NONE

Hazardous Polymerization: WILL NOT OCCUR

SECTION #7 -- SPILL, LEAK, & DISPOSAL PROCEDURES

SARA Hazard Classes: Chronic Health Hazard.

SARA Hazard Classes: Fire Hazard.

Steps to be Taken in The Event of Spills, Leaks, or Release

SOAK UP RESIDUE WITH AN ABSORBANT. PICK UP AND PUT IN WASTE CONTAINER.

Waste Disposal Methods

ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

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SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

EXPLOSION-PROOF GENERAL VENTILATION MAY HAVE TO BE SUPPLEMENTED BY LOCAL EXHAUST TO MAINTAIN CONCENTRATIONS BELOW TLV'S.

Eye Protection

CHEMICAL SPLASH GOGGLES.

Skin Protection

CHEMICAL RESISTANT GLOVES AND CLOTHING TO MINIMIZE SKIN CONTACT.

Respiratory Protection

NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE.

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SECTION #8 - SPECIAL PROTECTIVE MEASURES Continued...

Other Protection

AS NEEDED TO PREVENT OVEREXPOSURE.

SECTION #9 - SPECIAL PRECAUTIONS, STORAGE & HANDLING

Storage & Handling Conditions

STORE IN A COOL DRY, WELL VENTILATED AREA, AWAY FROM SOURCES OF IGNITION. DO NOT CUT, WELD, DRILL, ON OR NEAR EMPTY CONTAINERS - MAY CONTAIN PRODUCT RESIDUE. VAPORS ARE HEAVIER THAN AIR AND CAN TRAVEL TO DISTANT AREAS. GROUND FIXED EQUIPMENT. BOND AND GROUND TRANSFER CONTAINERS.

SECTION #10 - SHIPPING INFORMATION

Hazard Class: FLAMMABLE LIQUID

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M a t e r i a l S a f e t y D a t a S h e e t PU-056	Page: 1 02/24/92
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Company Contact: GLENN ;>·WOODS _'·_ _.' _-:·,/-:..

Emergency Contact: GLENN D. WOODS
Emergency Phone Number: (501)234-3381 7288

SECTION #1 - IDENTIFICATION

Chemical: PU-056

CAS Number: Not Established .
Product Code: NA
Chemical Family: MIXTURE
Chemical Formula: NA
RTECS Number: NA ,..

Synonyms: ADHESIVE,ONION TANK MB

NFPA Hazard Rating - Health: 1 Slight ---
 - Fire: 3 High

 - Reactivity: 0 Negligible
 - PP: H

Special Hazards: FLAMMABLE LIQUID - IRRITANT -.

Section #2 - c H E M r c A L c o m P o n E N T s

Component: BLEND OF MONO BENZYLAMINE AND DIBENZYLAMINE
CAS Number: Not Established Percent of Mixture: 19.8600
 OSHA PEL TWA - NE
 OSHA STEL - NE

Component: METHYL ETHYL KETONE
CAS Number: 78-93-3 Percent of Mixture: 54.7900
 OSHA PEL TWA - 200 PPM
 OSHA STEL - 300 PPM

SECTION #3 - PHYSICAL DATA

Boiling Point: 175°F 79.6°C
Vapor Pressure: 77.5 mm Hg
Vapor Density (Air=1): 2.5
Solubility (H2O): 26.8

Pmprietaiy & Confidential Material

SECTION #3 - PHYSICAL DATA Continued...

Percent Volatiles: 100
Evaporation Rate: 5.7

Appearance ..

LIQUID

Odor

SOLVENT ODOR

Odor Threshold: NA

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

Flash Point: 23°F

Lower Explosive Limit (%): 2.0
Upper Explosive Limit (%): 11.0

Fire and Explosion Hazards...

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC ELECTRICITY OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR FULL OR EMPTY DRUMS BECAUSE PRODUCT (EVEN RESIDUE) CAN IGNITE EXPLOSIVELY. ALL METAL CONTAINERS SHOULD BE GROUND AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

Extinguishing Media

ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE

Special Fire Fighting Instructions

WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

SECTION #5 - EXPOSURE and EFFECTS - INHALATION

Routes of Exposure - Inhalation

EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, OR HEADACHE.

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SECTION #5 - EXPOSURE and EFFECTS - INHALATION Continued...

First Aid - Inhalation

REMOVE TO FRESH AIR AND PROVIDE OXYGEN. ~~GET MEDICAL ATTENTION.~~

SECTION #5 - EXPOSURE and EFFECTS

Routes of Exposure - Skin

Prolonged or repeated liquid contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis.

First Aid - Skin

Wash with soap and water. If irritation persists, get medical attention.

1. SECTION #5 - Exposure and Effects EYES

Routes of Exposure - Eyes

MAY CAUSE REDNESS, TEARING, BLURRED VISION.

First Aid - Eyes

IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES. GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - INGESTION

Routes of Exposure - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

First Aid - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

SECTION #5 - MISCELLANEOUS TOXICOLOGICAL INFORMATION

HEATING OR MIXING RUBBER STOCKS CONTAINING DBA CAN RELEASE MONOBENZYLAMINE, WHICH IS A SEVERE IRRITANT.

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SECTION #5 - HEALTH CONDITIONS AGGRAVATED BY EXPOSURE

PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS.

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: STABLE

Conditions to Avoid (Stability)

H AT, SPARKS, FLAME AND TRONG OXIDIZING AGENTS.

Hazardous Decomposition Products

CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS.

Hazardous Polymerization: WIJ,L NOT OCCUR

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

SARA Hazard Classes: Chroni Health Hazard

SARA Hazard Classes: Fire Hazard

Other Environmental Information

NONE.

Steps to be Taken in The Event of Spills, Leaks, or Release

ABSORB LIQUID WITH A SORBENT MATERIAL AND TRANSFER TO CONTAINERS.

Waste Disposal Methods

IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS REGARDI G- PROPER DISPOSAL.

SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

EXPLOSION-PROOF GENERAL VENTILATION MAY HAVE TO BE SUPPLEMENTED BY LOCAL EXHAUST TO MAINTAIN CONCENTRATIONS BELOW RECOMMENDED TLVS.

Eye Protection

CHEMICAL GOGGLES.

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SECTION #8 - SPECIAL PROTECTIVE MEASURES Continued...

Skin Protection

CHEMICAL, RESISTANT GLOVES > NOTHING AS REQUIRED TO MINIMIZE CONTACT.

Respiratory Protection

USE A NIOSH-APPROVED RESPIRATOR -TO PREVENT OVEREXPOSURE.

Other Protection

NEEDED TO PREVENT OVEREXPOSURE.

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

Storage & Handling Condition

STORE AWAY FROM SOURCE OF HEAT, FLAME AND SPARKS.

SECTION #10 - SHIPPING INFORMATION.

Hazard Class: FLAMMABLE LIQUID

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AMERICAN FUEL CELL & COATED FABRICS COMPANY
MONTICELLO, ARKANSAS

MIXING 'AND APPLICA'.I'ION .INSTRUCTIONS
FOR PU-059 REPAIR CEMENT

PU-059 is shipped as a two part kit consisting of the following:

1. Part A U-058 Masterbatch, Part #1,0490
 2. Part B U-056 Catalyst, Part #1,0488
1. Shake vigorously, the vial labeled PU-056.
 2. Pour entire contents of vial labeled PU-056 into the bottle labeled PU-058 and mix or shake vigorously for several minutes.
 3. The cement is now PU-059 and is ready for use.
 4. Maximum shelf after cement is mixed is 8 hours.

APPLICATION INSTRUCTIONS

1. Roughen lightly surface to be repaired and also the part #1,0593 repair material.
2. Wash area to be repaired and part #1,0593 repair patch material with part #1,0489 solvent. Allow solvent to evaporate.
3. Apply one brush coat of PU-059 repair cement - to both the patch material and area to be repaired. Dry cement five to ten minutes.
4. Apply second brush of PU-059 to both the patch material and area to be repaired. Dry ten minutes.
5. Repair patch shall be of sufficient size to overlap injury two inches around injury.
6. Place patch centered over injury and stitch down starting at the center of the patch and work outward toward edges. Stitch down thoroughly.
7. Allow repair to set 24 hours before flexing.

Material Safety Data Sheet
LS-449

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02/24/92

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SECTION #1 - IDENTIFICATION

Chemical: LS-449

CAS Number: Not Established .
Product Code: NA
Chemical Family: 'MIX'URE
Chemical Formula: NA
RTECS Number: NA

Synonyms: SOLVENT,BLENDED

NFPA Hazard Rating - Health: 2 Moderate
- Fire: 3 High
- Reactivity: 0 Negligible
PP: H

Special Hazards: FLAMMABLE LIQUID

SECTION #2 - CHEMICAL COMPONENTS

Component: ETHYL ACETATE

CAS Number: 141-78-6.

Percent of Mixture: 27.0000

OSHA PEL TWA - 400 PPM

OSHA STEL - NE

Component: METHYL ETHYL KETONE

CAS Number: 78-93-3

Percent of Mixture: 48.0000

OSHA PEL TWA - 200 PPM

OSHA STEL - 300 PPM

Component: TOLUENE

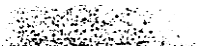
CAS Number: 108-88-3

Percent of Mixture: 25.0000

OSHA PEL TWA - 100 PPM

OSHA STEL - 150 PPM

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SECTION #3 - PHYSICAL DATA

Boiling Point: 175°F 79.6°C
Vapor Pressure: 77.5 mm Hg
Vapor Density (Air=1): 2.5
Solubility (H2O): 26.8
Percent Volatiles: 100
Evaporation Rate: 5.7

Appearance

L QUID

Odor

KETONE ODOR

Odor Threshold: NA

SECTION #4 - FIRE FIGHTING EXPLOSION DATA

Flash Point: 23°F

Lower Explosive Limit (%): 1.0
Upper Explosive Limit(%): 11.0

Fire and Explosion Hazards

- . VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, SPARKS, HEATERS, SMOILING, ELECTRIC MOTORS, STATIC ELECTRICITY OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR FULL OR EMPTY DRUMS BECAUSE PRODUCT (EVEN RESIDUE) CAN IGNITE EXPLOSIVELY. ALL METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED,

Extinguishing Media

ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE

Special Fire Fighting Instructions

WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

Pf: p r i a f g p r o t ; - f . f H J ; , , , . r i f f l e
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... S... e... in with ... tt-1) t... b...

SECTION #5 - EXPOSURE and EFFECTS - INHALATION

Routes of Exposure - Inhalation

EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL, AND RESPIRATORY IRRITATION, CENTRAL NERVOUS. SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, OR HEADACHE.

First Aid - Inhalation.

REMOVE TO FRESH AIR AND PROVIDE OXYGEN. GET MEDICAL ATTENTION.

SECTION #5-- EXPOSURE and EFFECTS - SKIN

Routes of Exposure - Skin

PROLONGED OR REPEATED LIQUID CONTACT CAN RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN SKIN IRRITATION AND DERMATITIS.

First Aid - Skin

WASH WITH SOAP AND WATER. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - EYES

Routes of Exposure - Eyes

SYMPTOMS USE REDNESS, TEARI NG, IRRITATION.

First Aid - Eyes

IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES. GET MEDICAL ATTENTION.

SECTION #5 - EXPOSURE and EFFECTS - INGESTION

Routes of Exposure - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

First Aid - Ingestion

NOT A LIKELY ROUTE OF EXPOSURE.

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BY INHALATION AT LEVELS GREATER THAN 1000 PPM FOR MOST OF THE GESTATION PERIOD. MEK MAY POTENTIATE PERIPHERAL NEUROPATHY CAUSED BY METHYL N-BUTYL KETONE OR N-HEXANE. MEK ITSELF HAS NOT BEEN SHOWN TO CAUSE PERIPHERAL NEUROPATHY. OVEREXPOSURE TO MEK HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LAB. ANIMALS: LUTER: ASNO LITIES, KIDNEY DAMAGE-, LUNG DAMAGE, BRAIN DAMAGE.

SECTION #5 - HEALTH CONDITIONS AGGRAVATED BY EXPOSURE

PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS.

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: STABLE

Conditions to Avoid- (Stability)

HEAT, SPARKS, FLAME AND SUSTAINING OXIDIZING AGENTS.

Hazardous Decomposition Products

CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS.

Hazardous Polymerization: WILL NOT OCCUR

SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

SARA Hazard Classes: Chronic Health Hazard

SARA Hazard Classes: Fire Hazard

Other Environmental Information

NONE.

Steps to be Taken in The Event of Spills, Leaks, or Release

ABSORB LIQUID WITH ABSORBENT MATERIAL AND TRANSFER TO CONTAINERS.

Waste Disposal Methods

IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS REGARDING PROPER DISPOSAL.

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Abstract

Figure 1. Schematic representation of the experimental design. The subjects were divided into two groups: the control group and the experimental group. The control group received a placebo, while the experimental group received a combination of a placebo and a low-dose of the active ingredient. The subjects were then subjected to a series of tests, including a physical performance test, a cognitive performance test, and a psychological performance test. The results of the tests were then compared between the two groups.

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$$x_{i+1} = \frac{1}{2} \left(x_i + \frac{a}{x_i} \right)$$
[illegible]

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

$$r(t) = \frac{1}{2} \left(\frac{1}{2} \right)^t$$

1. $m = 8$, $C = 1$, $n = 1$, $r = 1$

1999

Abstract

SECTION #8 - SPECIAL PROTECTIVE MEASURES

Ventilation

-EXPLOSION PROOF GENERAL VENTILATION MAY HAVE TO BE SUPPLEMENTED BY LOCAL EXHAUST TO MAINTAIN CONCENTRATIONS BELOW COMMENDED TLVS.

Eye Protection

CHEMICAL GOGGLES.

Skin Protection

CHEMICAL RESISTANT GLOVES AND CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

Respiratory Protection

USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE.

Other Protection-

AS NEEDED TO PREVENT OVEREXPOSURE. ,

SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

Storage & Handling Conditions

STORE AWAY FROM SOURCES OF HEAT, FLAME AND SPARKS.

SECTION #10 - SHIPPING INFORMATION

Hazard Class: FLAMMABLE LIQUID

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AMFUEL

Proprietary & Confidential Material



Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

DeLo® 400 LE SAE 15W-40

Product Use: Engine Oil

Product Number(s): CPS222220

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Information Center: Located in the USA. International collect calls accepted (800)231-0623 or (510)231-0623

231-0623

Product Information

email : lubemsds@chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS		
COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil {C15 - C50}	Mixture	80 - 100 %weight
Zinc alkyl dithiophosphate	68649-42-3	1 - 2 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

E ye: No specific first aid measure. Wash eyes with water. If irritation persists, consult a physician. If necessary, consult a physician.

Skin: No specific first aid measures
the material from skin, use soap and water to wash the affected area. Remove contaminated clothing and shoes. Wash thoroughly with soap and water.

Important: Specific first aid measures are required for all types of inhalation exposure. If you are wearing a respirator, get it changed or thoroughly clean before reuse. As a precaution, get **medical** advice if you experience symptoms of overexposure. If you experience symptoms of overexposure, move the person to fresh air. Get **medical** attention if you experience symptoms of overexposure. If you experience symptoms of overexposure, move the person to fresh air. Get **medical** attention if you experience symptoms of overexposure.

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SECTION 5 FIRE FIGHTING MEASURES**FIRE CLASSIFICATION**

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability : 1 Reactivity: 0

FLAMMABLE PROPERTIES

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.87 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Volatile Organic

Compounds (VOC): 1.1 %weight

Viscosity: 6.6 est @ 100°C (212°F) (Min)

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components. No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion

products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

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. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE

Ready Biodegradability: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The descriptions shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. AOR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc alkyl dithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required.

All other components are listed or exempted from listing on EINECS.

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : ENGINE OIL 1 - ENG1

REVISION STATEMENT This is a new Material Safety Data Sheet.

Revision Date: July 24, 2006

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	CAS - Chemical Abstract Service Number
API - American Petroleum Institute	IMO/IMDG - International Maritime Dangerous Goods Code
CVX - Chevron	MSDS - Material Safety Data Sheet
DOT - Department of Transportation (USA)	NFPA - National Fire Protection Association
	NTP - National Fire Protection Association (USA)
	OSHA - Occupational Safety and Health Administration
IARC - International Agency for Research on Cancer	HA - Occupational Safety and Health Administration
Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.	

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.



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ACETYLENE MSDS

Product **Name:** Acetylene, dissolved

Ch : = Acetylene

Formula: C_2H_2

Chemical Family: Alkyne

Use: Welding, instrument fuel

Synonyms: Ethyne, Welding Gas

NFPA Fire: 4

HMIS Fire: 4

Acute: No

NFPA Health: 0

HMIS Health: 1

Chronic: No

NFPA Reactivity: 3

HMIS Reactivity: 3

Fire: Yes

NFPA Special Hazard:

Mixture: No

Reactive: Yes
Sudden Release Yes
Pressure:

02. INGREDIENTS - COMPOSITION & INFORMATION

COMPONENT	CAS No.	PERCENT		EXPOSURE GUIDELINES	
		(BY WT.)		OSHA - TWA	ACGIH - STEL
Acetylene	74-86-2	99.0%	100.0%		Simple Asphyxiant

LO50: None. LC50: Nono.

03. HAZARDS IDENTIFICATION

Physical Properties Overview:

Danger: Flammable; gas, under pressure.

Can form explosive mixtures with air.

Containers contain liquid; liquid: metal pressure relief devices in the top, bottom, or valve

Highly flammable at 208-220°F (98-105°C).

Do not discharge cylinders at pressures above 15 psig (103 kPa).

Garlic-like odor.

Potential Health Effects Information:

Inhalation: Simple asphyxiant.

It should be noted that before suffocation could occur, the 10, 1er flammability limit of

acetylene in air would be exceeded; possibly causing both an explosion and an oxygen deficient atmosphere. Exposure in moderate concentration may cause dizziness, headache, and loss of consciousness. Lack of sufficient oxygen may cause serious injury or death.

Eye: None.

Skin: None.

Ingestion: None.

Chemical Effects: Acetylene is a non-toxic gas that has no harmful effects, even in high concentrations. Acetylene has been used as an anesthetic.
Irritation: Irritation is Aggravated by moisture.

Overexposure:

Carcinogenicity: Not listed in IARC, OSHA or TP.

04. FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Eye: None.

Skin: None.

Ingestion: None.

Notes To Physician: None.

05. FIRE FIGHTING MEASURES

Flash Point: Not applicable; Gas.

Auto ignition: 581°F (305°C) @ 1 atm

Flammable Limits - Lower: 2.5%

Flammable Limits - Upper: 80%

Extinguishing Media: Carbon Dioxide, Dry Chemical, Water.

Fire Fighting Instructions: DO NOT extinguish a gas fire unless effective immediate shut-off of gas flow is possible. Explosive vapor could form. Keep adjacent cylinders cool by spraying large amounts of water until the fire burns itself out and the cylinders are cool. If a flame is extinguished and acetylene continues to escape, an explosive re-ignition could occur.

Additional Fire Fighting Instructions: Excessive heat or fire will cause fusible metal pressure relief device to melt allowing acetylene to escape. Cylinders may rupture violently if sidewalls are exposed to direct flame impingement. Cylinders exposed to fire should not be moved until they have reached ambient temperature in the event internal decomposition is taking place.

Hazardous Combustion Products: Carbon Monoxide, Carbon dioxide.

Sensitivity To Static Discharge: Ignitable by static electricity.

Sensitivity To Mechanical

Impact: Decomposition may occur.

06. ACCIDENTAL RELEASE MEASURES

Evacuate: If this material is released into a work area, evacuate the area immediately.

Isolate

hazard area. Eliminate any possible sources of ignition. provide maximum explosion

proof ventilation. Shut off source of acetylene, if possible. Isolate any leaking cylinder. If leaking from cylinder, valve or fusible metal pressure relief device, contact your supplier. Never enter a confined space or other area where the concentration is greater than 10% of the lower flammable limit which is 0.25%.

07. HANDLING AND STORAGE

Storage: Store and use only in a well-ventilated area. Cylinders should be separated from oxygen and other oxidizers by a minimum of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least

1/2 hour. Storage in excess of 2,500 cu. Ft. is prohibited in buildings with other occupancies. Cylinders should be stored upright with a valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from

physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Post "No Smoking or Open Flames" signs in the storage or use

areas. There should be no sources of ignition. All electrical equipment should be explosion-proof in the storage and use areas. Storage areas must meet national electrical codes for class I hazardous areas.

Do not allow storage temperature to exceed 125°F (52°C). Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Handling: All acetylene piped systems and associated equipment must be grounded. Non-sparking tools should be used. Never use copper piping for acetylene service.

only steel or wrought iron pipe should be used. An acetylene cylinder valve should be opened the minimum amount required to deliver acceptable flow so that it can be closed as quickly as possible in an emergency situation. Do not open acetylene valves more than one and one-half turns. Never use acetylene in excess of 15 psig pressure. Acetylene cylinders are heavier than other cylinders because they are packed with a porous filler material and acetone. Leak check with soapy water: never use a flame. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve openings. Doing so may damage valve, causing a leak to occur. Do not strike cap with a hammer. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. For additional precautions in using acetylene see Section 16 - Other Information.

When Used In Welding Or Cutting: Read and understand the manufacturer's instructions and the precautionary label on the products. See American National Standard Institute (ANSI) 249.1 Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, Florida 33135 and National Fire Protection Association (NFPA) 51 Oxygen Fuel Gas; Welding and Cutting.

08.

EXPOSURE CONTROLS - PERSONAL PROTECTION

Engineering Controls:

Ventilation: Provide adequate natural or explosion-proof mechanical ventilation to ensure acetylene does not accumulate and reach its lower explosive limit of 2.5%

Personal Protective Equipment (PPE):

Skin Protection:

Clothing: Cotton clothing is recommended for use to prevent static buildup.

Glasses: Safety glasses are recommended when handling cylinders.

Shoes: Safety shoes are recommended when handling cylinders.

Gloves: Work gloves are recommended when handling cylinders.

Respiratory Protection: Before entering area you must check for flammable and oxygen deficient atmospheres.

Respirator: None required in general use.

Wear a NIOSH/MSHA-approved (or equivalent) full-face piece airline respirator in the positive pressure mode in oxygen deficient atmospheres (air purifying respirators will not function).

09.

PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas

Color: Colorless gas.

Odor: Acetylene of 100% purity is odorless but commercial purity has a distinctive garlic-like odor.

Molecular Weight: 26.04

Boiling Point: -103.4°F (-75°C) @ 10 psig

Specific Gravity: 0.906 At 70°F (21.1°C) @ 1 atm. Air = 1

Freezing/Melting Point: -112°F (-82.2°C), at 10 psig

Vapor Pressure: 635 psig. At 70°F (21.1°C)

Vapor Density: 0.07314 lb./cu ft (1.176 kg/CuM). At 32°F (0°C) @ 1 atm

Water Solubility: 1.7 Vol.%. At 32°F (0°C) at 1 atm

Expansion Ratio: Not Applicable - Gas

pH: Not Applicable - Gas

Odor Threshold: 565 ppm

Evaporation Rate: Not Applicable - Gas

Distribution:

10. STABILITY AND REACTIVITY

Chemical Stability: Unstable. Stable as Shipped. Do not use at pressure above 15 psig (103 kPa).

Conditions To Avoid: Avoid mechanical shock.

Avoid high temperatures

Incompatibility With Other Materials: Under certain conditions, acetylene can react with copper, silver, and mercury.

Materials: to

form acetylides, compounds which can act as ignition sources. Brasses containing

less than 65% copper in the alloy and certain nickel alloys are suitable for acetylene

service under normal conditions. Acetylene can react explosively when combined

with oxygen and other oxidizers including all halogens and halogen compounds.

The

presence of moisture, certain acids, or alkaline materials tends to enhance the formation of copper acetylides.

Hazardous Decomposition Products: Hydrogen, carbon

Products: Hydrogen, carbon

Hazardous Polymerization: Will not occur

11.

TOXICOLOGICAL INFORMATIONLC₅₀: 50% inhalation-man/5minTC₅₀: (Anesthesia) 33% inhalation-man/7 min

Irritancy Of Material: None.

Sensitivity To Material: None.

Reproductive Effects: None.

Teratogenicity: None.

Mutagenicity: None.

Synergistic Materials: None.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No adverse ecological effects are expected. Acetylene does not contain any Class

I or Class II Ozone depleting chemicals (40 CFR Part 82). Acetylene is not listed

as a marine pollutant by DOT (49 CFR Part 171).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

Unserviceable cylinders should be returned to the supplier for safe and proper disposal.

14.

TRANSPORT INFORMATION

DOT/IMO Shipping Name: Acetylene, dissolved

Hazard Class: 2.1 (Flammable gas.)

Identification Number: UN 1001

PIN: 1001

Product RQ: None.

Shipping Label: Flammable Gas.

Special Shipping Information: Cylinders should be transported in a secure position, in a well ventilated vehicle.

The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious hazards and should be discouraged.

Placard (When Required): Flammable gas.

TOP OF THE PAGE

[Back to Material Safety Data Sheet](#)

WOULD YOU LIKE MORE INFORMATION OR LEAVE A MESSAGE?

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HALLIBURTON**MATERIAL SAFETY DATA SHEET**

Product Trade Name: **BARO-SEAL™ CLASSIC**

Revision Date: 02-Jan-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BARO-SEAL™ CLASSIC
Synonyms: None
Chemical Family: Not applicable
Application: Additive
Manufacturer/Supplier: Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000
Prepared By: Chemical Compliance
Telephone: 1-580-251-4335

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
contains no hazardous substances	ixture	0-100%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye irritation.

4. FIRST AID MEASURES

Inhalation Under normal conditions, first aid procedures are not required.
Skin Under normal conditions, first aid procedures are not required.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion Under normal conditions, first aid procedures are not required.
Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits In Air • Lower (%):	Not Determined
Flammability Limits In Air • Lower (oz.lft3):	0.07
Flammability Limits In Air • Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 1, Flammability 1, Reactivity 0
HMIS Ratings: Flammability 1, Reactivity 0, Health 1

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust.

Storage Information Store **away** from oxidizers. Store in a dry location. Product has a shelf life of 60 months.

ii. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Safety glasses.

Other Precautions None known.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:
Color:

Solid
Brown

- PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Cedar
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	0.93
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	10.5-17.5
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility In Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	None known.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	None known.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Dermal Toxicity:
Toxicity Tests	
Oral Toxicity:	

None known.

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Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Biodegradable
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
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Other Information	Not applicable
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113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class None

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 For This Product 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** All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law Does not apply.

NJ Right-to-Know Law Does not apply.

PA Right-to-Know Law Does not apply.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory.

WHMIS Hazard Class Un-Controlled

116. OTHER INFORMATION

The following sections have **been** revised since the last Issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: DEXTRID®

Revision Date: 02-Jun-2007

II. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: DEXTRID®
Synonyms: None
Chemical Family: Modified Starch
Application: Fluid Loss Additive
Not for use In the United States

Manufacturer/Supplier: Baroid Fluid Services
Produd Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Paraformaldehyde	0525-89-4	1-5%	Not applicable	Not applicable
Complex carbohydrate		0-100%	10m m ³	15 mg/m ³

13. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye, skin, and respiratory irritation. May cause allergic skin and respiratory reaction. Airborne dust may be explosive.

k- FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin: In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.

Eyes: In case of contact, or suspeded contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion: Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician: Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits In Air - Lower (%):	Not Determined
Flammability Limits In Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential. Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0
HMIS Ratings: Flammability 1, Reactivity 0, Health 2

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Avoid dust accumulations.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 12 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (95%)

Hand Protection Impervious rubber gloves.

Skin Protection Normal work coveralls.

Eye Protection Dust proof goggles.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: Off white

Odor: Pungent

- PHYSICAL AND CHEMICAL PROPERTIES

pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.5
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	30-44
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure@ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Partially soluble
Solubility In Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

MO. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong acids. Strong alkalis. Amines.
Hazardous Decomposition Products	Formaldehyde. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

ff1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Causes severe respiratory irritation. May cause allergic respiratory reaction.
Skin Contact	May cause a rash and itching of the skin. May cause severe skin irritation. This product contains ingredients which may produce an allergic skin reaction. It should be treated as a skin sensitizer.
Eye Contact	May cause severe eye irritation.
Ingestion	Causes burns of the mouth, throat and stomach.
Aggravated Medical Conditions	Skin disorders. Eye ailments. Lung disorders.
Chronic Effects/Carcinogenicity	Paraformaldehyde may release formaldehyde monomer, a probable human carcinogen. Chronic exposures may cause cancer of the lung and nasal passages. Formaldehyde and possibly paraformaldehyde may react with hydrochloric acid to form bis-chloromethyl ether, a known human carcinogen.

Other Information

None known.

Toxicity Tests

Oral Toxicity:	LOSO: 800 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

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

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: 360 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity:	TLM96: 538,900 ppm (Mysidopsis bahia) SPP @ 10 ppb
Acute Algae Toxicity:	Not determined

Chemical Fate Information	Not determined
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Other Information	Not applicable
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13. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard 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	EPA Reportable Spill Quantity is 25000 Pounds based on Paraformaldehyde (CAS: 30525-89-4).
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 66	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	028 Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last Issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

.. END OF MSDS*



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

EMERGENCY OVERVIEW

CAUTION!

**OSHA/NFPA COMBUSTIBLE LIQUID • SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED**



NFPA 704 (Section 16)

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer. If Ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07096-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000
MSDS INTERNET WEBSITE: www.hess.com (See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

HEALTH

Contact with liquid or vapor may cause mild irritation.

SKIN

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.



MATERIAL SAFETY DATA SHEET

iesel Fuel (All Types)

MSDS No. 9909

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT(%):	0.6
UPPER EXPLOSIVE LIMIT(%):	7.5

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill. If possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM 04865 "Standard Guide for Generation and Dissipation of Static



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	Exposure um1ts		Note
		TWA/STEL		
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist		
	ACGIH	100 mg/m³ (as totally hydrocarbon vapor) TWA		A3 skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA		
	ACGIH	10 ppm TWA/ 15 ppm STEL		A4. Skin

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR

Mild petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE: 0.009 psia@70 °F (21°C)
VAPOR DENSITY (air= 1): > 1.0
SPECIFIC GRAVITY (H₂O = 1): 0.83 to 0.88@60 °F (16°C)
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other Ignition sources. Keep away from strong oxidizers; Viton®; Fluorel®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute dermal LOSO (rabbits): > 5 ml/kg Acute oral LOSO (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits) Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PGIII	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic)	
	UN 1202 (International)	
DOT SHIPPING LABEL:	None	



Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X		

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Data Listed</u>
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class 81 Division 3 (Combustible Liquid) and Class 0, Division 2, Subdivision B (Toxic by other means)



MATERIAL SAFETY DATA SHEET

Diesel Fuel All T es

MSDS No. 9909

11. OTHER INFORMATION

NEPA® HAZARD RATING

HEALTH: 0
FIRE: 2
REACTIVITY: 0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS® HAZARD RATING

HEALTH: 1 * * Chronic
FIRE: 2
PHYSICAL: 0

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/O = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute	OSHA	U.S. Occupational Safety & Health Administration
API	(212) 642-4900 American Petroleum Institute (202) 682-8000	PEL	Permissible Exposure Limit (OSHA)
		RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	REL	Recommended Exposure Limit (NIOSH)
		SARA	Superfund Amendments and
DOT	U.S. Department of Transportation [General info: (800) 467-4922]		Reauthorization Act of 1986 Title III
EPA	U.S. Environmental Protection Agency	SCBA	Self-Contained Breathing Apparatus
HMIS	Hazardous Materials Information System	SPCC	Spill Prevention, Control, and Countermeasures
IARC	International Agency For Research On Cancer	STEL	Short-Term Exposure Limit (generally 15 minutes)
MSHA	Mine Safety and Health Administration	TLV	Threshold Limit Value (ACGIH)
NFPA	National Fire Protection Association (617)770-3000	TSCA	Toxic Substances Control Act
		TWA	Time Weighted Average (8 hr.)
NIOSH	National Institute of Occupational Safety and Health	WEEL	Workplace Environmental Exposure Level (AIHA)
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	WHMIS	Canadian Workplace Hazardous Materials Information System

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

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

Revision Date: 10/18/2006

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HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: EZ-MUDGOLD

Revision Date: 02-JiJn 007

M- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUDGOLD
Synonyms: None
Chemical Family: Anionic Polymer
Application: Additive
Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

- COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Contains no hazardous substances	Mixture	0-100%	Not applicable	Not applicable

- HAZARDS IDENTIFICATION

Hazard Overview: May cause eye and skin irritation. Airborne dust may be explosive.

k- FIRST AID MEASURES

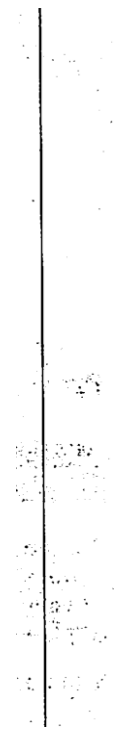
Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

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

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

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable



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• **Wavelength:** The distance between two consecutive peaks or troughs of a wave.

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- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits In Air - Lower (%):	Not Determined
Flammability Limits In Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 1

II. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust. Slippery when wet.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

III. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Slippery when wet.

Storage Information Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 36 months.

@. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (95%) Not normally needed. But if significant exposures are possible then the following respirator is recommended:

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

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

Other Precautions None known.

PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Granules
Color:	Off white
Odor:	Odorless
pH:	7.75 (1%)
Specific Gravity @ 20 C (Water=1):	0.8-1.0
Density @ 20 C (lbs./gallon):	6.66-8.33
Bulk Density @ 20 C (lbs/ft ³):	52
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCS (lbs/gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	None known.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Toxicity Tests

None known.

Oral Toxicity:	LD50: > 5000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. **ECOLOGICAL INFORMATION**

Mobility (Water/Sol/Air)	Not determined
Persistence/Degradability	Not readily biodegradable.
Bio-accumulation	Will not bio-accumulate.

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: >1000 mg/l (Pimephales promelas)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	EC50: > 500 mgn (Selenastrum capricornutum)

Chemical Fate Information	Not determined
Other Information	Not applicable

113. **DISPOSAL CONSIDERATIONS**

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. **TRANSPORT INFORMATION**

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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	The California Proposition 65 regulations apply to this product.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have been revised since the last issue of this **MSDS**
Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative. For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.
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Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.
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•it:tEND OF MSDS***

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **EZ-MUD® PLUS**

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD® PLUS

Family: (1) None Blend

Application: Additive

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrotreated light petroleum distillate	742-47-8	10- 30%	00 mg/m ³	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated shoes and discard.

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

Ingestion Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

Notes to Physician Not Applicable

@. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not DeterminedMin: > 200
Flash Point/Range (C):	Not DeterminedMin: > 93
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-containedbreathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0

HMIS Ratings: Flammability 1, Reactivity 0, Health 2

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from eritering sewers, waterways or low areas

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

if. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 12 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Organic vapor respirator with a dust/mist filter.

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

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

Other Precautions Eyewash fountains and safety showers must be easily accessible

Physical State:

Liquid

Color:

White to gray

Odor:

Mild hydrocarbon

- PHYSICAL AND CHEMICAL PROPERTIES

pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.0
Density @ 20 C (lbs./gallon):	8.3
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	347
Boiling Point/Range (C):	175
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	70
Evaporation Rate (Butyl Acetate=1):	< 1
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.
Aggravated Medical Conditions	Lung disorders.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.

Other Information None known.

Toxicity Tests

Oral Toxicity: Not determined

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity Not determined

Genotoxicity: Not determined

**Reproductive /
Developmental Toxicity:** Not determined

112. 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: TLM48: 98 mg/l (Acartia tonsa)

Acute Algae Toxicity: EC50: 16.70 mg/l (Skeletonema costatum)

Chemical Fate Information Not determined

Other Information Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TOG

Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute 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 All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law Does not apply.

NJ Right-to-Know Law Does not apply.

PA Right-to-Know Law Does not apply.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory.

WHMIS Hazard Class 028 Toxic Materials

116. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information For additional Information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Lubricating Oil, Gear

Product Use: Gear Lubricant

Product Number(s): 9150-01-035-5393, 9150-01-035-5394, 9150-01-035-5395, 9150-01-0 5-5396

Synonyms: Lubricating Oil, Gear - 80W90 Gear Oil, Lubricating Oil, Gear - 85W140 Gear 011

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15-C50)	Mixture	80 - 95 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 180 °C (356 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective

clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested

Material Safety Data Sheet

materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, V

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for

mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	OSHA PEL	CEILING	Notes
Highly refined (C15-C50)	ACGIH	5 mg/m ³	10 mg/m ³	1--	
Highly refined mineral oil (C15-C50)	OSHA	5 mg/m ³			

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air = 1): >1

Boiling Point: >371°C (699.8°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Specific Gravity: 0.88 - 0.92 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Viscosity: 13.7 est. @ 100°C 212°F Min

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 = IARC Group 1	03 = EPCRA 313
01-2 A = IARC Group 2A	04 = CA Proposition 65
01-2B = IARC Group 2B	05 = MA RTK
02 = NTP Carcinogen	06 = NJ RTK
	07 = PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PIGGS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Gear oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS : Health : 1 Flammability : 1 Reactivity : 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet:

2,5,8,9,10,11,14,15,16

Revision Date: 06/05/2006

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: HY-SEAL®

Revision Date: 02-Jan-2007

11. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HY-SEAL®

Synonyms: None

Chemical Family: Carbohydrate

Application: Additive

Manufacturer/Supplier: Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335

12. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Cellulose	19004-34-6	0-100%	110 mg/m ³	115 mg/m ³

13. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye irritation. Airborne dust may be explosive.

K. FIRST AID MEASURES

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

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

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

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Flammability 0, Reactivity 0, Health 0

@. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

if HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 60 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	None known.
Respiratory Protection	Not normally necessary.
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Safety glasses.
Other Precautions	None known.

PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Color :

Odor:

pH:

Specific Gravity @ 20 C (Water- 1):

Density @ 20 C (lbs./gallon):

Solid

White to off white

Odorless

Not Determined

1.4

Not Determined

- PHYSICAL AND CHEMICAL PROPERTIES

Bulk Density @ 20 C (lbs/ft3):	2.5- 8.3
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility In Water (gl100ml):	Not applicable
Solubility In Solvents (gl100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@20 C (centipoise):	Not Determined
Viscosity, Kinematic@20 C (centistokes):	Not Determined
Partition CoefficientIn-OctanolWater:	Not Determined
Molecular Weight (g/mole):	Not Determined

ff0. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

ff1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact. inhalation.
Inhalation	None known.
Skin Contact	None known.
Eye Contact	May cause mechanical irritation to eye.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Primary Irritation Effect:
Toxicity Tests	
Oral Toxicity:	
Dermal Toxicity:	
Inhalation Toxicity:	

None known.

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Not determined

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Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/SolUAlr)	Not determined
Persistence/Degradability	Readily biodegradable
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
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Other Information	Not applicable
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113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

ft4. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels:

None

HY-SEAL®

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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 For This Product	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 66	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have been revised since the last Issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The Information may not be valid under all conditions nor if this material is used in combination with other materials or *in* any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Hydraulic Oil AW

Product Use: Hydraulic Oil

Product Number(s): CPS255673, CPS255674, CPS255675

Synonyms: Chevron AW Hydraulic Oil ISO 32, Chevron AW Hydraulic Oil ISO 46, Chevron AW Hydraulic Oil ISO 68

Company Identification

Chevron Lubricants Canada Inc.

Lubricants Chevron Canada

6975-A Pacific Circle

Mississauga ONT L5T 2H3

Canada

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	=;ixture	90 - 100 %weight

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with

water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FLAMMABLE PROPERTIES

Flashpoint: (Cleveland Open Cup) 170 °C (338 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency		STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	3	10 mg/m3	-	--

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection. Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbon solvents; insoluble in water.

Freezing Point: Not Applicable

Specific Gravity: 0.86 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Density: 0.86 kg/l - 0.9 kg/l @ 15°C (59°F)

Volatile Organic

Compounds (VOC): <2.1 %weight

Viscosity: 28.8 est @ 40°C (104°F) (Min)

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitive to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization No product toxicology data available.

Acute Dermal Toxicity: LD50: >5g/kg {rabbit}. The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: LD50: >5 g/kg {rat} The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components. For additional information on the acute toxicity of the components, call the technical information center.

ADDITIONAL TOXICOLOGY INFORMATION :

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

48 hour(s) EC50: >1000 mg/l (Daphnia magna)

96 hour(s) LC50: >1000mg/l (Oncorhynchus mykiss)

This material is not expected to be harmful to aquatic organisms.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.S.M.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TOG REGULATIONS

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1

01-2 A=IARC Group 2A

01-2B=IARC Group 2B

35=WHMIS IDL

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirement s: AICS (Australia)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA). R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC. P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 06/06/2006

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 9,15

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT.

TLV - Threshold Limit Value	TWA - Time WeightedAverage
STEL - Short-term Exposure Limit	PEL - Permissible ExposureLimit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG- InternationalMaritime Dangerous Goods Code
API - American PetroleumInstitute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - NationalFire Protection Association (USA)
DOT - Department of Transportaiton (USA)	NTP - NationalToxicology Program (USA)
IARC - International Agency for Researchon Cancer	OSHA - Occupational Safety and Health Administration

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, "IJe 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.

HALLIBURTON**MATERIAL SAFETY DATA SHEET**Product Trade Name: **IDP-214**

Revision Date: 06-Jan-2005

- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: IDP-214
Synonyms: None
Chemical Family: Organic hydrocarbon
Application: Lubricant
Manufacturer/Supplier: Barold Drilling Fluids
 a Product Service Line of Halliburton Energy services, Inc.
 P.O.Box 1875
 Houston, TX 77251
 Telephone: (281) 871-4000
 Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
 Telephone: 1-680-251-4335

COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Butene, homopolymer	9003-29-6	1 - 5%	Not applicable	Not applicable
Muscovite	1318-84-1	8-10%	Not applicable	Not applicable
Talc	14807-96-8	2-10%	2 mg/m ³	15 mg/m ³
Aluminum, benzoate C16-18 fatty acids hydroxy complexes	82980-54-9	10 - 30%	Not applicable	Not applicable
Hydrotreated heavy naphthenic distillate	64742-52-5	30-50%	Not applicable	Not applicable
Hydrotreated residual petroleum oil	64742-57-0	30-50%	Not applicable	Not applicable

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin irritation.

14. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.

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

IDP-214
Page 1 of 8

Other Precautions

Eyewash fountains and safety showers must be easily accessible.

10. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Semi-Solid
Color:	Amber to brown
Odor:	Hydrocarbon
pH:	7
Specific Gravity @ 20 °C (Water=1):	1.00
Density @ 20 °C (lbs./gallon):	8.33
Bulk Density @ 20 °C (lbs/ft ³):	Not Determined
Boiling Point/Range (°F):	<600
Boiling Point/Range (°C):	< 318
Freezing Point/Range (°F):	>450
Freezing Point/Range (°C):	>232
Vapor Pressure @ 20 °C (mmHg):	Not Determined
Vapor Density (Air=1):	>5
Percent Volatiles:	0
Evaporation Rate (Butyl Acetate=1):	< 0.01
Solubility In Water (g/100ml):	Insoluble
Solubility in Solvents (<100ml):	Not Determined
VOCS (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 °C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 °C (centistokes):	Not Determined
Partition Coefficient M-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

11. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide. Oxides of nitrogen.
Additional Guidelines	Not Applicable

12. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Massive Inhalation may be harmful.
Skin Contact	May cause an allergic skin reaction.
Eye Contact	May cause eye irritation.
Ingestion	Large doses may cause nausea, vomiting and diarrhea.
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.

Toxicity Tests

Oral Toxicity:	LD50: > 2000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not determined
Bioaccumulation	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

113. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	If empty container retains product residues, all label precautions must be observed. Store away from ignition sources. Transport with all closures in place. Return for reuse or disposal according to national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TDG

Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG

Not restricted

other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TICA Inventory AIJ components listed on Inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute Health Hazard
Chronic Health Hazard

EPA SARA (313) Chemical Release Reporting 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 For This Product Not applicable.

EPA RCRA Hazardous Waste Classification If product beCtJntes a w , it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65 All components listed do *not* apply to the California Proposition 65 Regulation.

MA Right-to-Know Law One or more components listed.

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

Canadian Regulations

Canadian DSL Inventory Product contains one or more components not listed on inventory.

WHMIS Hazard Class un..contnmed

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information

For additional information on the use of this product, contact your local Haffiburton representative.

For questions about the Material Safety Data Sheet for this or other Haffiburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This Information is furnished without warranty, expressed or implied, as to accuracy or completeness. The Information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

"*END OF MSDr"

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Dura-Lith® Grease EP

Product Use: Grease

Product Number(s): CPS254593, CPS254595, CPS254596, CPS254597, CPS254598

Synonyms: Chevron Dura-Lith® Grease EP NLGI 0, Chevron Dura-Lith® Grease EP NLGI 00, Chevron Dura-Lith® Grease EP NLGI 000, Chevron Dura-Lith® Grease EP NLGI 1, Chevron Dura-Lith® Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email: lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 95 %weight
Zinc dialkyldithiophosphate	68649-42-3	< 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit Symptoms of respiratory irritation may include coughing and difficulty breathing.

S=E=C=TI=O=N=4=F=IR=S=T=Al=D=M=E=A=SU=R=E=S=====I'

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water.

Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 200 °C (392 °F) (Min)

Auto ignition : No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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, 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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Limiting	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m ³	110 mg/m ³	-	-
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m ³	--	-	-

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Varies depending on specification

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >260°C (500°F)

Solubility: Soluble in hydrocarbon; insoluble in water

Melting Point: 155°C (311°F) (Min)

Viscosity: 105 cSt @ 40°C 104°F Min

110 STAB II

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

(Acute) Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PARTK

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

Zinc dialkyldithiophosphate 03, 06

.....,u, ,a l 1) u<1tc:1 :neet

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: EINECS (European Union), ENCS (Japan), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: DSL (Canada), IECSC (China), PICCS (Philippines).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health : 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1

REVISION STATEMENT This revision updates the following sections of this Material Safety Data Sheet: 1,2,7,10,14-16

Revision Date: 12/05/2005

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG- International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association {USA}
DOT - Department of Transportation {USA}	NTP - National ToxicologyProgram (USA)
IARC - InternaitonalAgency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

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MATERIAL Safety Data Sheet

IDENTIFICATION

Toxicological Properties of Product

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MATERIAL SAFETY DATA SHEET

BIO-CUT

SECTION I - Product Identification

MANUFACTURER'S NAME: Control Chemical (1989) Corporation

MANUFACTURER'S ADDRESS: 7016, 30th Street S.E.
Calgary, Alberta, Canada
T2C 1N9

EMERGENCY PHONE NUMBER: (403) 720-7044

SUPPLIER IDENTIFIER:

SUPPLIER'S ADDRESS:

SUPPLIER'S EMERGENCY PHONE NUMBER:

PRODUCT IDENTIFIER: BIO-CUT

PRODUCT USE:

SECTION II - Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD (50)	LC (50)
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This is not a hazardous or controlled product.

SECTION III - Physical Data for Product

PHYSICAL STATE: Liquid

ODOUR AND APPEARANCE: Dark brown, distinctive

ODOUR THRESHOLD:

SPECIFIC GRAVITY: 0.887

VAPOR PRESSURE: Not established

VAPOR DENSITY (Air= 1): Not established

EVAPORATION RATE: Not established

BOILING POINT: Not established

FREEZING POINT: -25 degrees C

pH: 7.0-7.2

DENSITY (g/ml):

COEFFICIENT OF WATER/ OIL

DISTRIBUTION: Not available

SECTION IV - Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY:	
MEANS OF EXTINCTION:	HAZARDOUS COMBUSTION PRODUCTS:
FLASHPOINT AND METHOD OF DETERMINATION:	EXPLOSION DATA:
UPPER EXPLOSION LIMIT(% by Vol):	SENSITIVITY TO STATIC DISCHARGE:
LOWER EXPLOSION LIMIT(% by Vol):	
AUTO-IGNITION TEMPERATURE:	
FLAMMABILITY CLASSIFICATION:	

Foam, CO2, Dry chemical, water spray

290 degrees C C.C.Not
established
Not established
Not available

Not available
Not available
None

MATERIAL SAFETY DATA SHEET

BIO-CUT

SECTION V - Reactivity Data

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	None
CONDITIONS OF REACTMTY:	None
HAZARDOUS DECOMPOSITION PRODUCTS:	If burnt, oxides of sulphur

SECTION VI - Toxicological Properties of Product

ROUTES OF ENTRY:

SKIN CONTACT:	Wash with soap and water
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SKIN ABSORPTION:

EYE:	Flush with water for 15 minutes
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INHALATION:	No hazard during normal use
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INGESTION:	Do not induce vomiting, contact physician. Not toxic.
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ACUTE OVER EXPOSURE EFFECTS:	Inhalation: Not hazardous unless burning toxic fumes possible.
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	Ingestion: Greater than 5000 mg/kg in rats.
--	---

	Eyes: Eye irritation not expected.
--	------------------------------------

	Skin: No skin irritation or allergic reaction expected.
--	---

CHRONIC OVER EXPOSURE EFFECTS:	Inhalation: Not hazardous unless burning toxic fumes possible.
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	Ingestion: Greater than 5000 mg/kg in rats.
--	---

	Eyes: Eye irritation not expected.
--	------------------------------------

	Skin: No skin irritation or allergic reaction expected.
--	---

EXPOSURE LIMITS:	Not available
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IRRITANCY OF PRODUCT:	Not an irritant
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SENSITIZATION TO MATERIAL:	None
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CARCINOGENICITY, REPRODUCTIVE EFFECTS:	Not available
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TERATOGENICITY, MUTAGENICITY:	Not available
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TOXICOLOGICALLY SYNERGISTIC PRODUCTS:	Not available
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SECTION VII - Preventive Measures

PERSONAL PROTECTIVE EQUIPMENT:	Not necessary
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SPECIFIC ENGINEERING CONTROLS:

LEAK AND SPILL PROCEDURES:	Although product is environmentally safe, spills should be contained and wiped up.
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WASTE DISPOSAL:	Although product is environmentally safe, spills should be contained and wiped up. Dispose according to Federal, Provincial or Municipal regulations.
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HANDLING PROCEDURES AND EQUIPMENT:	None
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STORAGE REQUIREMENTS:	None
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SPECIAL SHIPPING INFORMATION:	None
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MATERIAL SAFETY DATA SHEET

BIO-CUT

SECTION VIII - First Aid Measures

SPECIFIC FIRST AID PROCEDURES:	Eyes: Flush with water for 15 minutes Ingestion: Do not induce vomiting, contact physician. Not toxic. Skin: Wash with soap and water
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SECTION X - Preparation Date of Material Safety Data Sheet

PREPARED BY:	Safety Committee
--------------	------------------

PHONE NUMBER OF PREPARER:	(403) 720-7044
DATE PREPARED:	January 02, 2002

The information contained herein is based on data believed to be reliable, but is presented without guarantee or warranty and Control Chemical (1989) Corporation disclaims any liability incurred from the use thereof.

Material Safety Data Sheet

DD9SS

Material Identification and Use

MANUFACTURER'S NAME CONTROL CHEMICAL (1989) CORPORATION
MANUFACTURER'S ADDRESS 7016 30 Street SE Calgary, Alberta, Canada, T2C 1N9
EMERGENCY PHONE NUMBER(403) 720-7044
SUPPLIER IDENTIFIER
SUPPLIER'S ADDRESS
SUPPLIER EMERGENCY PHONE NUMBER
PRODUCT IDENTIFIERDD955
PRODUCT USE Drilling Mud

Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD(50)	LC(50)
Mineral Spirits	20-40%	CAS 64742-47-8	(Oral, Rat) Overs ml/kg	NIE

Physical Data For Product

PHYSICAL STATE..... Liquid
ODOUR AND APPEARANCE Oily smell, liquid emulsion
ODOUR THRESHOLD NIE
SPECIFIC GRAVITY 0.98
VAPOUR PRESSURE..... NIE
VAPOUR DENSITY (air-1) NIE
EVAPORATION RATE..... NIE
BOILING POINT NIE
FREEZING POINT NIE
pH 7.0 - 9.0 (0.6% in distilled water)
DENSITY (g/ml) NIE
COEFFICIENT OF WATER/OIL DISTRIBUTION NIE

Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY Requires source of ignition, presense of air and temperature greater than flashpoint
MEANS OF EXTINCTION In case of fire use water spray, foam, dry chemical, or CO2 AVOID USE OF
WATER-SLIPPERY CONDITIONS WILL OCCUR.
FLASHPOINT AND METHOD OF DETERMINATION.70 c. (C.C.)
UPPER EXPLOSION LIMIT(% BY VOL) NIE
LOWER EXPLOSION LIMIT(% BY VOL)..... NIE
AUTO-IGNITION TEMPERATURE NIE

Material Safety Data Sheet

DD955

FLAMMABILITY CLASSIFICATION..... Combustible Liquid Class B-3
HAZARDOUS COMBUSTION PRODUCTS..... Oxides of carbon or nitrogen and products of incomplete combustion.
EXPLOSION DATA NIE
SENSITIVITY TO STATIC DISCHARGE..... Potential for fire and/or explosion when used indoors.

Reactivity Data

CHEMICAL STABILITY Stable
INCOMPATIBLE MATERIALS Avoid strong oxidizing and reducing materials.
CONDITIONS OF REACTIVITY..... Avoid contamination with reactive materials.
HAZARDOUS DECOMPOSITION PRODUCTS..... NIE

Toxicological Properties of Product

ROUTES OF ENTRY
SKIN CONTACT May cause irritation, redness, swelling or dermatitis.
SKIN ABSORPTION..... N/A
YE Will cause painful burning or stinging of eyes and lids, watering of eyes and inflammation.
INHALATION..... N/A
INGESTION May cause nausea or vomiting.
ACUTE OVER EXPOSURE EFFECTS..... NIE
CHRONIC OVER EXPOSURE EFFECTS Skin irritation or dermatitis may occur upon frequent or prolonged contact.
EXPOSURE LIMITS..... Contains traces of acrylamide, TWAEV=0.03 mg/mg3 (ONT.>REG 654/86)
IRRITANCY OF PRODUCT Skin-moderate eye-moderate
SENSITIZATION TO MATERIAL Repeated or prolonged exposure may cause sensitization in some individuals.
CARCINOGENICITY, REPRODUCTIVE EFFECTS..... NIE
TERATOGENICITY, MUTAGENICITY NIE
TOXICOLOGICALLY SYNERGISTIC PRODUCTS NIE

Preventive Measures

PERSONAL PROTECTIVE EQUIPMENT Wear eye/face protection. Wear suitable gloves.
SPECIFIC ENGINEERING CONTROLS General ventilation with a good source of make-up air recommended for all indoor situations.
LEAK AND SPILL PROCEDURES..... Contain the spill, soak up with an absorbent material. Clean with an adequate solvent.
WASTE DISPOSAL..... In accordance with Municipal, Provincial and Federal regulations.
HANDLING PROCEDURES AND EQUIPMENT..... N/A
STORAGE REQUIREMENTS Store in a tightly sealed container.
SPECIAL SHIPPING INFORMATION None.

First Aid Measures

Material Safety Data Sheet

DD955

SPECIFIC FIRST AID PROCEDURESFLUSH EYES WITH WATER. RINSE CONTAMINATED SKIN WITH SOAP AND WATER. IF INGESTED, GIVE WATER. DO NOT INDUCE VOMITING. CALL A PHYSICIAN. IN CASE OF DISCOMFORT BY VAPORS OR DUSTS, MOVE TO A VENTILATED AREA.

Preparation Date of Material Safety Data Sheet

PREPARED BY..... Control Chemical (1989) Corporation
PHONE NUMBER OF PREPARER (403) 720-7044
DATE PREPARED..... January 02, 2002

The information contained herein is based on data believed to be reliable, but is presented without guarantee or warranty and Control Chemical (1989) Corporation disclaims any liability incurred from the use thereof.

MATERIAL SAFETY DATA SHEET

DD2000

SECTION I - Product Identification

MANUFACTURER'S NAME: Control Chemical (1989) Corporation
MANUFACTURER'S ADDRESS: 7016, 30th Street S.E.
Calgary, Alberta, Canada
T2C 1N9
EMERGENCY PHONE NUMBER: (403) 720-7044
SUPPLIER IDENTIFIER:
SUPPLIER'S ADDRESS:
SUPPLIER'S EMERGENCY PHONE NUMBER:
PRODUCT IDENTIFIER: DD2000
PRODUCT USE: . Drilling mud - Co-polymer of Acrylamide and Sodium Acrylate

SECTION II - Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD (50)	LC (50)
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No regulated components.

This is not a WHMIS controlled product.

SECTION III - Physical Data for Product

PHYSICAL STATE: Solid

ODOUR AND APPEARANCE: Granular white solid. Faint odour

ODOUR THRESHOLD: Not available

SPECIFIC GRAVITY: 0.80

VAPOR PRESSURE: Very low

VAPOR DENSITY (Air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Decomposes

FREEZING POINT: Not available

pH: Not available

DENSITY (g/ml): 0.80

COEFFICIENT OF WATER/ OIL DISTRIBUTION: Not available

SECTION IV - Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY: Requires a source of ignition, the presence of air, and a temperature greater than the flash point.

MEANS OF EXTINCTION: Use dry chemical, foam, or carbon dioxide. Water may cause excessive slipperiness

FLASHPOINT AND METHOD OF DETERMINATION: UPPER EXPLOSION LIMIT(% by Vol): LOWER EXPLOSION LIMIT(% by Vol):

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MATERIAL SAFETY DATA SHEET

DD2000

AUTO-IGNITION TEMPERATURE:	Not available
FLAMMABILITY CLASSIFICATION:	Not available. Not a controlled product.
HAZARDOUS COMBUSTION PRODUCTS:	Not available
EXPLOSION DATA:	Not available
SENSITIVITY TO STATIC DISCHARGE:	Not available

SECTION V - Reactivity Data

CHEMICAL STABILITY:	Stable under normal conditions. Hazardous polymerization will not occur
INCOMPATIBLE MATERIALS:	Avoid strong oxidizing and reducing agents.
CONDITIONS OF REACTIVITY:	Avoid contamination with reactive substances
HAZARDOUS DECOMPOSITION PRODUCTS:	Not available

SECTION VI - Toxicological Properties of Product

ROUTES OF ENTRY:	
SKIN CONTACT:	No effects of exposure expected due to contact. Prolonged contact may cause skin irritation or dermatitis in some individuals.
SKIN ABSORPTION:	No known hazard due to skin absorption
EYE:	No effects of exposure expected with the exception of possible irritation
INHALATION:	May cause sneezing, slight irritation of nose and throat
INGESTION:	
ACUTE OVER EXPOSURE EFFECTS:	
CHRONIC OVER EXPOSURE EFFECTS:	Skin irritation or dermatitis may occur upon frequent or prolonged contact.
EXPOSURE LIMITS:	TWAEV = 0.03 mg/m ³ (skin) (Ont. Reg. 654/86).
IRRITANCY OF PRODUCT:	Eye: mild irritant.
SENSITIZATION TO MATERIAL:	Repeated or prolonged contact may cause sensitization in some individuals
CARCINOGENICITY, REPRODUCTIVE EFFECTS:	
TERATOGENICITY, MUTAGENICITY:	Not available
TOXICOLOGICALLY SYNERGISTIC PRODUCTS:	Not available

SECTION VII - Preventive Measures

PERSONAL PROTECTIVE EQUIPMENT:	Chemical goggles, impervious gloves, and protective clothing as required to prevent contact. Use a mechanical-filter respirator as required to prevent exposure.
SPECIFIC ENGINEERING CONTROLS:	General ventilation with a good source of make-up air recommended for all indoor situations

MATERIAL SAFETY DATA SHEET

DD2000

LEAK AND SPILL PROCEDURES:	Ventilate area. Wear rubber boots, gloves, and a self-contained breathing apparatus if ventilation is not adequate. Collect into waste container. Avoid raising dust. Wash spill site after material pickup. Water solutions are very slippery. May constitute a hazard following a spill
WASTE DISPOSAL:	Dispose of waste according to Federal, Provincial, and Municipal regulations.
HANDLING PROCEDURES AND EQUIPMENT:	Avoid prolonged or frequent contact when handling material. Do not inhale dust or breathe vapor. Wear a NIOSH approved mechanical-filter respirator, if adequate ventilation cannot be provided. Avoid skin or eye contact.
STORAGE REQUIREMENTS:	Keep container closed when not in use. Store in cool and dry location away from oxidizing and reducing agents.
SPECIAL SHIPPING INFORMATION:	None

SECTION VIII - First Aid Measures

SPECIFIC FIRST AID PROCEDURES:	Skin contact: wash exposed area with soap and water. If irritation or abnormalities persist, call a physician. Eye contact: Immediately flush eyes with water for 15 minutes and call a physician. Inhalation: remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician. Ingestion: do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.
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SECTION X - Preparation Date of Material Safety Data Sheet

PREPARED BY:	Safety Committee
PHONE NUMBER OF PREPARER:	(403) 720-7044
DATE PREPARED:	January 02, 2006

The information contained herein is based on data believed to be reliable, but is presented without guarantee or warranty and Control Chemical (1989) Corporation disclaims any liability incurred from the use thereof.

III BOC GASES

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: OXYGEN

1. Chemical Product and Company Identification

BOC Gases,
Division of
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE NUMBER:
CHEMTREC (800) 424-9300

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE NUMBER:
(905) 501-0802

EMERGENCY RESPONSE 20101

PRODUCT NAME: OXYGEN
CHEMICAL NAME: Oxygen
COMMON NAMES/SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2 (5.1)
WHMIS CLASSIFICATION: A, C

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/11/95
REVIEW DATES: 6/11/96

2. Composition, Information on Ingredients

INGREDIENT	%VOWME	PEL-OSHA	TLV.ACGIW	LDsoorLC50 Route/Sneclcs
Oxygen FORMULA: Ch CAS: n82-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Available	Not Available	Not Available

¹ As stated in 29 CFR 1910. Subpart Z (revised July 1, 1993)

² As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents

3. Hazards Identification

EMERGENCY OVERVIEW

Elevated oxygen levels may result in cough and other pulmonary changes. High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, amblyopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. Nonflammable. Oxidizer, will accelerate combustion.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
No	No	No	Yes	No

MSDS: G-1
Revised: 6/11/96

PRODUCT NAME: OXYGEN

HEALTH EFFECTS:

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen Yes
Synergistic Effects None known		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

Adverse effects not anticipated.

SKIN EFFECTS:

Adverse effects not anticipated.

INGESTION EFFECTS:

Adverse effects not anticipated.

INHALATION EFFECTS:

High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, amblyopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. The propensity is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75% present a risk of inflammation of organic matter in the body.

Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

NFPA HAZARD CODES

Health: 0
Flammability: 0
Reactivity: 0

HMIS HAZARD CODES

Health: 0
Flammability: 0
Reactivity: 0

RATINGS SYSTEM

0=NoHazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

4. First Aid Measures

EYES:

Never introduce ointment or oil into the eyes without medical advice. If pain is present, refer the victim to an ophthalmologist for treatment and follow up.

SKIN:

Remove contaminated clothing and flush affected areas with lukewarm water. If irritation persists, seek medical attention.

INGESTION:

Ingestion is not anticipated.

PRODUCT NAME: OXYGEN

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Further treatment should be symptomatic and supportive. Inform the treating physician that the patient could be experiencing hyperoxia.

5. Fire Fighting Measures

Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(o/o): None		UEL(o/o): None
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:

High oxygen concentrations vigorously accelerate combustion.

EXTINGUISHING MEDIA:

Water spray to keep cylinders cool. Extinguishing agent appropriate for the combustible material.

FIRE FIGHTING INSTRUCTIONS:

If possible, stop the flow of oxygen which is supporting the fire.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section I or call your closest BOC location.

7. Handling and Storage**Electrical classification:**

Nonhazardous

Dry product is noncorrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO₂, H₂S, etc. in the moisture enhances the rusting of metals in air.

Carbon steels and low alloy steels are acceptable for use at lower pressures.

For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass bronze, silicon alloys, Monel®, Inconel® and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon®, Teflon® composites, or Kel-F® are preferred non-metallic gasket materials.

Check with the supplier to verify oxygen compatibility for the service conditions.

Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants.

MSDS: G-1

Revised: 6/196

PRODUCT NAME: OXYGEN

Stationary customer site vessels should operate in accordance with the manufacturer's and BOC's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest BOC location immediately.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14 and Safety Bulletin SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

EXPOSURE LIMITS:

INGREDIENT	%VOLUME	PEL-OSHA ¹	TLV-ACGIH ²	LD ₅₀ or LC ₅₀ Route/Species
Oxygen FORMULA: O ₂ CAS: 7782-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Available ..	Not Available	Not Available

¹ Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.

As stated in 29 CFR 1910. Subpart Z (revised July 1, 1993)

² As stated in the: ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:

Use local exhaust to prevent accumulation of high concentrations that increase the oxygen level in air to more than 25%.

EYE/FACE PROTECTION:

Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION:

Protective gloves made of any suitable material appropriate for the job.

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower.

PRODUCT NAME: OXYGEN

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Above critical temp.	
Vapor density (Air= 1)	: 1.11	
Evaporation point	: Not Available	
Boiling point	: -297.3	°F
	: -182.9	°C
Freezing point	: -361.8	°F
	: -218.8	°C
pH	: Not Applicable	
Specific gravity at STP	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slightly soluble	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

10. Stability and Reactivity

STABILITY:

Stable.

INCOMPATIBLE MATERIALS:

All flammable materials.

HAZARDOUS DECOMPOSITION PRODUCTS:

None.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. Toxicological Information

MUTAGENIC:

Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

MSDS: G-1

Revised: 6n/96

PRODUCT NAME: OXYGEN

14. Transport Information

PARAMETER	United States DOT	Canada TOG
PROPER SHIPPING NAME:	Oxygen, compressed	Oxygen, compressed
HAZARD CLASS:	2.2	2.2 (5.1)
IDENTIFICATION NUMBER:	UN 1072	UN 1072
SHIPPING LABEL:	NONFLAMMABLE GAS, OXIDIZER	NONFLAMMABLE GAS, OXIDIZER

15. Regulatory Information

SARA TITLE In NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES:

Fire H87.8rd

Sudden Release of Pressure Hazard

16. Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **PAC-L PREMIUM**

Revision Date: 02-Jan-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: . PAC-I PREMIUM
Synonyms: None
Chemical Family: Carbohydrate
Application : Fluid Loss Additive

Manufacturer/Supplier Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Cellulose derivative		0 - 100%	Not applicable	Not applicable

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

. FIRST AID MEASURES

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

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

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

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	430
Flash Point/Range (C):	221
Flash Point Method:	Not Determined
Autoignition Temperature (f):	752
Autoignition Temperature (C):	400
Flammability Limits In Air - Lower (%):	Not Determined
Flammability Limits In Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 0

ii. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

iii. HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations. Slippery when wet.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 36 months.

iv. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

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

Other Precautions None known.

v. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: White to tan

- PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Odorless
pH:	6.5-9 (1%)
Specific Gravity @ 20 C (Water-1):	1.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	40-55
Boiling Point/Range (F):	Not Determined
Bolling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (91100ml):	Forms gel
Solubility In Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centlpoise):	Not Determined
Viscosity, Kinematic @ 20 C (centlstrokes):	Not Determined
Partition Coeffcientln-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

ii0. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	VVill Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

n1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 1260 mg/kg (Rat)
Dermal Toxicity:	Not determined

Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: > 500 mg/l (Golden orfe)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/ATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

PAC-L PREMIUM

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class None

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 All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law Does not apply.

NJ Right-to-Know Law Does not apply.

PA Right-to-Know Law Does not apply.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory.

WHMIS Hazard Class Un-Controlled

h&. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580.251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other *third* party sources. The information may not be valid under all conditions nor *if* this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*,.END OF MSDS***

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: PAC-R PREMIUM

Revision Date: 26-Jul-2004

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: PAC-R PREMIUM
Synonyms: None
Chemical Family: Carbohydrate
Application: Fluid Loss Additive

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-1WA	OSHA PEL-1WA
Cellulose derivative		0-100%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard overview: May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

4. FIRST AID MEASURES

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

Skin: Wash with soap and water. Get medical attention if irritation persists.

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

Ingestion: Under normal conditions, first aid procedures are not required.

Notes to Physician: Not Applicable

5. FIRE FIGHTING MEASURES

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	430
Flash Point/Range (C):	221
Flash Point Method:	Not Determined
Autoignition Temperature (F):	752
Autoignition Temperature (C):	400
Flammability Limits in Air - Lower (%) :	Not Determined
Flammability Limits in Air - Upper (%) :	Not Determined

Fire Extinguishing **Media** Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMS Ratings: Flammability 0, Reactivity 0, Health 0

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary MeasuresAvoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations. Slippery when wet.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 36 months.

ii. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

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

Other Precautions None known.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Powder

Color:

White to tan

PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Odorless
pH:	6.5-9 (1%)
Specific Gravity@20 C (Water=1):	1.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	40-55
Bolling Point/Range (F):	Not Determined
Bolling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Forms gel
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centlpolse):	Not Determined
Viscosity, Kinematic @20 C (centlstrokes):	Not Determined
Partltton Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Oral Toxicity:
Toxicity Tests	Dermal Toxicity:

None known.

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Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive/ Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: > 500 mg/l (Golden orfe)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have **been** revised since the last Issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The Information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

***END OF MSDS*..



INTERNATIONAL INDUSTRIAL GASES LTD.

HOME | OUR VISION | PRODUCTS | MARKET SERVED | CUSTOMER RESPONSE | TECH INFO | MSDS INFO | SAFETY INFO | FEEDBACK | CONTACT INFO

PROPANE MSDS

Product Name: Propane
Chemical Name: Propane
Formula: C₃H₈
Chemical Family: Alkane (hydrocarbon)
Use: Various
Synonyms: Dimethylmethane, LP-Gas, Liquefied petroleum gas (LPG)

NFPA Fire: 4
NFPA Health: 1
NFPA Reactivity: 0
NFPA Special Hazard:

HMIS Fire: 4
HMIS Health: 0
HMIS Reactivity: 0
Mixture: No

Acute: No
Chronic: No
Fire: Yes
Reactive: No
Sudden Release Pressure: Yes

02. INGREDIENTS - COMPOSITION & INFORMATION

COMPONENT	CAS No.	PERCENT		EXPOSURE GUIDELINES	
		(BY WT.)		OSHA • TWA	ACGIH • STEL
Propane LOSO: None, LCSO: Non o.	74-98-6	99.0%	100.0%	1000	Simple Asphyxiant

03. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Warning: Flammable liquid gas under pressure. Can form explosive mixture, with (air, Mn) cause frostbite.

Potential Health Effects Information:
Routes of Exposure:
Inhalation: Simple asphyxiant. It should be noted that before suffocation could occur, the lower flammable limit of propane in air could be exceeded; possibly causing both an oxygen-deficient and explosive atmosphere. Exposure to concentrations (> 10%) may cause dizziness. Exposure to atmosphere containing 8-10% or less oxygen will bring about unconsciousness without warning, and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Eye Contact: Contact with liquid or cold vapor can cause freezing of tissue.
Skin Contact: Contact with liquid or cold vapor can cause frostbite.
Chronic Effects: None.
Medical Conditions Aggravated: None.

Overexposure:
Other Effects of overexposure: None.

Carcinogenicity: Propane is not listed by I.P. OSHA or IARC.

04. FIRST AID MEASURES

Inhalation: Persons suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

Eyes: Contact with liquid or cold vapor may cause freezing of tissue. Gently flush eyes with lukewarm water. Obtain medical attention immediately.

Skin: Contact with liquid or cold vapor can cause frostbite. Immediately remove affected

Ingestion: None.
Notes To Physician: None.

05. FIRE FIGHTING MEASURES

Flash Point: -156F (-104C)
Autoignition: 842F (432C)
Flammable Limits - Lower: 2.2%
Flammable Limits - Upper: 9.5%
Extinguishing Media: CO2, dry chemical, water spray or fog for surrounding area. Do not extinguish until propane source is shut off.
Fire Fighting Instructions: Evacuate all personnel from danger area. Immediately cool container with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Stop flow of gas if without risk while continuing cooling water spray.
Fire And Explosion Hazards: Propane is easily ignited. It is heavier than air, therefore, it may collect in low areas or travel along the ground where an ignition source may be present. Pressure in a container can build up due to heat, and it may rupture if pressure relief devices should fail to function.
Hazardous Combustion Products: None known.
Sensitivity To Static Discharge: Possible, container should be grounded.
Sensitivity To Mechanical Impact: None.

06. ACCIDENTAL RELEASE MEASURES

Evacuate: evacuate the immediate area. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Shut off source of propane, if possible. If leaking from cylinder, or if I've, contact your supplier. Never enter a confined space or other area where the concentration is greater than 10% of the lower flammable limit which is 0.22%.

07. HANDLING AND STORAGE

Storage: Specific requirements are listed in NFPA 58. Cylinder storage locations should be well-protected, well-ventilated, dry, and separated from combustible materials. Cylinders should never knowingly be allowed to reach a temperature exceeding 125°F (52°C). Cylinders of propane should be separated from oxygen cylinders or other oxidizers by a minimum distance of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least ½ hour. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Post "No Smoking or Open Flames" signs in the storage areas. There should be no sources of ignition. All electrical equipment should be explosion proof in the storage and use areas. Storage areas must meet national electric codes for class I hazardous areas.

Handling: Propane is heavier than air and may collect in low areas that are without proper ventilation. Leak check system with leak detection solution, never with flame. If user experiences difficulty operating cylinder valve, discontinue use and contact supplier. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Non-sparking tools should be used. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Electrically bond and ground cylinder when transferring liquid product. For additional precautions in using propane see Section 16- Other Information.

08. EXPOSURE CONTROLS - PERSONAL PROTECTION

Engineering Controls:

Ventilation: Natural or mechanical to prevent accumulation in worker's breathing zone above exposure limits. (See Section 2).

Personal Protective Equipment (PPE):

PROPANE MSDS

Clothing: Cotton Clothing is recommended for use to prevent static electric buildup.
Glasses: Safety glasses are recommended when handling cylinders.
Shoes: Safety shoes are recommended when handling cylinders.
Gloves: Work gloves are recommended when handling cylinders.
Respirator: None required in general use.

Emergency Use:

Shipping Label:

Physical State:

Color:

Odor:

Molecular Weight:

Boiling Point:

Specific Gravity:

Freezing/Melting Point:

Vapor Pressure:

Vapor Density:

Water Solubility:

Expansion Ratio:

pH:

Odor Threshold:

Evaporation Rate:

Coefficient Of Water/Oil

Distribution:

Chemical Stability:

Conditions To Avoid:

Incompatibility With Other Materials:

Hazardous Decomposition Products:

Hazardous Polymerization:

Other Studies Relevant To Material:

Irritancy Of Material:

Reproductive Effects:

Teratogenicity:

Synergistic Materials:

Sensitization To Material:

Mutagenicity:

ECOTOXICITY:

Waste Disposal Method:

DOT/IMO Shipping Name:

HAZARD CLASS:

Identification Number:

PIN:

Product RQ:

Seu: contained breathing apparatus (SCBA) or positive pressure airline with mask
arc to be used
in oxygen-
deficient
atmosphere.
Respirators
will not
function. Before
entering area,
you must check
for flammable
and oxygen
deficient
atmospheres.

09. PHYSICAL AND CHEMICAL PROPERTIES

Gas
Colorless
Unodorized propane has a slightly sweet odor. If an odorant has been added it will

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-43.67°F (-42.04°C) @ 1 atm
1.5223 At 70°F (21.1°C) @ 1 atm.
Air= 1
-305.84°F (-187.69°C) at 1 atm
109.73 psig. (756.56 kPa) at 70°F (21.2°)
0.110 lb/Jcu fl (J.1.77kg/CuM). At 70°F (21.1°C) @ 1 atm

065 Vol/JVol. At 100° F (37.8°C)
1 to 290 at 70°F (21.1°C)
Not applicable
1800mg/CuM
Not Applicable - Gas

Information not available

10. STABILITY AND REACTIVITY

Stable
None.
Oxidizing agents.
None.
Will not occur

11. TOXICOLOGICAL INFORMATION

Propane is nontoxic and is a simple asphyxiant. however it does have slight anesthetic properties and higher concentrations may cause dizziness.

None.
None.
None.
None.
None.
None.

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected. Propane does not contain any Class I or Class II Ozone depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171).

13. DISPOSAL CONSIDERATIONS

Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

Residual product within process system may be burned at a controlled rate, if a suitable burning unit (flare stack) is available on site. This shall be done in accordance with federal, state, and local regulations.

14. TRANSPORT INFORMATION

Propane
2.1 (Flammable gas.)
UN 1978•
1978
None.
Flammable Gas.

Placard (When Required):	Flammable gas.
Special Shipping Information:	Cylinders should be transported in a secure position, in a well ventilated vehicle. The transportation of compressed gas; cylinders in automobiles or in closed-body vehicles can present serious hazards and should be discouraged.
Special Shipping Information	•For domestic transportation only: The identification number UN 1075 may be used in place of the identification number UN 1978. The identification number used must be consistent on package markings, shipping papers, and emergency response information (Special permission 19 from 49 CFR 172.101).

1.0JJF THE PAJ;1-

WOULD YOU LIKE MORE INFORMATION OR LEAVE A MESSAGE

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **QUIK-GEL GOLD™**

Revision Date: 12-Sep-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL GOLD™

Synonyms: None

Chemical Family: Mineral

Application: Viscosifier

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

- COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Crystalline silica, cristobalite	14464-46-1	- 0-1%	0.025 mg/m ³	112 x 10 mg/m ³ %SiO ₂ +2
Crystalline silica, tridymite	15468-32-3	0-1%	0.05 mg/m ³	112 x 10 mg/m ³ %SiO ₂ +2
Crystalline silica, quartz	14808-60-7	1-5%	0.025 mg/m ³	110 mn/m ³ %SiO ₂ +2
Bentonite	1302-78-9	60- 100%	Not addlicable	Not aoolicable

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

- HAZARDS IDENTIFICATION

13. **HAZARDS IDENTIFICATION**

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD

May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

K- FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Treat symptomatically.

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower(%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Health 0*, Flammability 0, Physical Hazard 0

= ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.
Measures

Environmental Precautionary

**Procedure for Cleaning /
Absorption**

None known.

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

- HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Do not reuse empty container. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Keep from excessive heat. Product has a shelf life of 12 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal 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.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Tan
Odor:	Mild earthy
pH:	8.5-9.5 (3%)
Specific Gravity@20 C (Water=1):	2.5- 2.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	69-74 (comp)
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Slightly soluble
Solubility In Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@ 20 C (centIpole):	Not Determined
Viscosity, Kinematic@20 C (centIstrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	<p>Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).</p> <p>Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).</p>
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause 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 quartz 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) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some smcates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma {an immune system disorder manifested by scarring of the lungs, skin, and other internal organs} and kidney disease.

Other Information

For further information consult "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 determined

Carcinogenicity Refer to IARC Monograph 68, Silica, Some smcates and Organic Eibres (June 1997).

Genotoxicity: Not determined

Reproductive / Developmental Toxicity: Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Not determined

Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations	California Proposition 65
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US TSCA Inventory

EPA SARA Title III Extremely
Hazardous Substances

EPA SARA (311,312) Hazard
Class

EPA SARA (313) Chemicals

**EPA CERCLA/Superfund
Reportable Spill Quantity**

**EPA RCRA Hazardous Waste
Classification**

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Acute Health Hazard
Chronic Health Hazard

This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

Not applicable.

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.
Canadian Regulations	
Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2A Very Toxic Materials Crystalline silica

116. OTHER INFORMATION

The following sections have been revised since the last Issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **QUIK-GEL®**

Revision Date: 03-Jan-2008

II. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL®

Synonyms: None

Chemical Family: Mineral

Application: Viscosifier

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

III. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Bentonite	1302-78-9	60-100%	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	1-5%	0.025 mg/m ³	10 mg/m ³ %SiO ₂ +2
Crystalline silica, cristobalite	14464-46-1	0-1%	0.025 mg/m ³	1/2 x 10 mg/m ³ %SiO ₂ +2
Crystalline silica, tridymite	15468-32-3	0-1%	0.05 mg/m ³	1/2 x 10 mg/m ³ %SiO ₂ +2

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

QUIK-GEL®

13. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD

May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Treat symptomatically.

FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0

HMIS Ratings: Health 0, Flammability 0, Physical Hazard 0, PPE: E

ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures

None known.

QUIK-GEL

Procedure for Cleaning / Absorption

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

- HANDLING AND STORAGE

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent 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. Keep from excessive heat. Do not reuse empty container.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

Hand Protection

Normal 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.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Partition Coefficient/n-Octanol/Water:

Color:

Odor:

pH:

Specific Gravity @20 C (Water=1):

Density @ 20 C (lbs./gallon):

Bulk Density @ 20 C (lbs./ft³):

Boiling Point/Range (F):

Boiling Point/Range (C):

Freezing Point/Range (F):

Freezing Point/Range (C):

Vapor Pressure @ 20 C (mmHg):

Vapor Density (Air=1):

Percent Volatiles:

Evaporation Rate (Butyl Acetate=1):

Solubility in Water (g/100ml):

Solubility in Solvents (g/100ml):

voes (lbs./gallon):

Viscosity, Dynamic @20 C (centipoise):

Viscosity, Kinematic @20 C (centistokes):

Powder

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PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight (g/mole):

Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	<p>Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).</p> <p>Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).</p>
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause 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 quartz 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) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68. Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information For further information consult "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 determined
Carcinogenicity	Refer to <u>IARC Monograph 68. Silica, Some Silicates and Organic Fibres</u> (June 1997).
Genotoxicity:	Not determined
Reproductive/ Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

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

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations	EPA RCRA Hazardous Waste Classification
US TSCA Inventory	California Proposition 66
EPA SARA Title III Extremely Hazardous Substances	
EPA SARA (311,312) Hazard Class	
EPA SARA (313) Chemicals	
EPA CERCLA/Superfund Reportable Spill Quantity	

licable

Acute Health Hazard
Chronic Health Hazard

This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

Not applicable.

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.
Canadian Regulations	
Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D2A Very Toxic Materials Crystalline silica

116. **OTHER INFORMATION**

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative.
	For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.
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.. END OF MSDS.*

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Ulti-Plex® Grease EP

Product Use: Grease

Product Number(s): CPS250185, CPS250186

Synonyms: Chevron Ulti-Plex® Grease EP NLGI 1, Chevron Ulti-Plex® Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
'.:;" , refined mineral oil (C15 - C50)	Mixture	60 - 90 %weight
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %weight

the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 274 °C (525 °F) (Typical)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15- CS0)	ACGIH	5 mg/m3	0 mg/m3		
Highly refined mineral oil (C15- CS0)	OSHA Z-1	5 mg/m3		-	-

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention : the data below are typical values and do not constitute a specification.

Color: Purple

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)

Vapor Density (Air = 1): >1

Boiling Point: >315 °C (599 °F)

Solubility: Soluble in hydrocarbon solvents; insoluble in water.

Melting Point: 233 °C (451.4 °F) (Min)

Viscosity: No data available

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or

product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313
01-2 A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 15

Revision Date: July 14, 2006

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
- Chevron	NFPA - National Fire Protection Association (USA)
- Department of Transportation (USA)	OSHA - Occupational Safety and Health Administration (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Ultra-Duty Grease EP

Product Use: Grease

Product Number(s): CPS238011, CPS238012, CPS238013

Synonyms: Chevron Ultra-Duty Grease EP NLGI 0, Chevron Ultra-Duty Grease EP NLGI 1, Chevron Ultra-Duty Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	65 - 80 %wt/wt
Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %wt/wt

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

First Aid: No specific first aid measures are required. As a precaution remove clothing and shoes if contaminated. To remove

the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Decontaminate clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 274 °C (525 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as a requirement.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents.'

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.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Material Safety Data Sheet

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the workplace 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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	110 mg/m3	-	=
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure : <0.01 mmHg @ 100 °C (212 °F)

Vapor Density (Air = 1): >1

Boiling Point: >260°C (500°F)

Solubility: Soluble in hydrocarbons insoluble in water

Melting Point: 165°C (329°F) (Min)

Density: @ 15°C (59°F)

Viscosity : No data available

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 6.7/110.

Skin Irritation: For a 24-hour exposure, the Primary Irritation Score (PIS) in rabbits is: 0.6/8.0.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: LD50: >2g/kg (rat).

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO

2. Delayed (Chronic) Health Effects: NO

3. Fire Hazard: NO

4. Sudden Release of Pressure Hazard: NO

5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2 B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc dialkyldithiophosphate

03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: KECI (Korea)

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

11

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 2

Revision Date: June 28, 2006

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/MDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association(USA)
DOT - Department of Transportation(USA)	NTIS - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

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.



rJ/J WD-40 Company

Material Safety Data Sheet



1 - Chemical Product and Company Identification

Manufacturer: WD-40 Company	Chemical Name: Organic Mixture
Address: 1061 Cudahy Place (92110) P.O. Box 80607 San Diego, California, USA 92138-0607	Trade Name: WD-40 Bulk Liquid
Telephone: 1-800-448-9340	Product Use: Cleaner, Lubricant, Penetrant
Emergency only: 1-888-324-7596 (PROZAR)	MSDS Date Of Preparation: 5/16/07
Information: 1-888-324-7596	

2 - Hazards Identification

Emergency Overview:

DANGER! Harmful or fatal if swallowed. Combustible Liquid. Avoid eye contact. Use with adequate ventilation. Keep away from heat, sparks and all other sources of ignition.

Symptoms of Overexposure:

Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.

Eye Contact: Contact may be mildly irritating to eyes. May cause redness and tearing.

Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis.

Chronic Effects: None expected.

Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Suspected Cancer Agent:

Yes No X

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent
Aliphatic Hydrocarbon	64742-478	45-50
	64742-48-9	
	64742-88-7	
Petroleum Base Oil	64742-65-0	30-35
LVP Aliphatic Hydrocarbon	64742-47-8	12-18
Non-Hazardous Ingredients	Mixture	<10

See Section 8 for Exposure Limits

4 - First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

Eye Contact: Flush thoroughly with water. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.

Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

5 - Fire Fighting Measures

Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

Special Fire Fighting Procedures: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water.

Unusual Fire and Explosion Hazards: Combustible liquid and vapor. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

6 - Accidental Release Measures

Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 - Handling and Storage

Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use with adequate ventilation. Keep away from heat, sparks, hot surfaces and open flames. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children.

Storage: Store in a cool, well-ventilated area, away from incompatible materials. NFPA 30 Class II Liquid.

8 - Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	100 ppm TWA (ACGIH) 1200 mg/m ³ TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m ³ TWA (OSHA/ACGIH)
LVP Aliphatic Hydrocarbon	1200 mg/m ³ TWA (manufacturer recommended)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product

Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Safety glasses or goggles recommended.

Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI 288.2 and good Industrial Hygiene practice.

Work/Hygiene Practices: Wash with soap and water after handling.

9 - Physical and Chemical Properties

Boiling Point:	323°F minimum	Specific Gravity:	0.817 72°F
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Solubility in Water:	Insoluble	oH:	Not Annlicable
Vapor Pressure:	1.8 mmHg @ 68°F (aliphatic hydrocarbon)	Vapor Density:	Greater than 1
Percent Volatile:	74%	VOE:	412 orams/liter (49.5%)
Coefficient of Water/Oil Distribution:	Not Determined	Appearance/Odor	Light amber liquid/mild odor
Flash Point:	131°F (concentrate) Tag Closed Cup	Flammable Limits: (Solvent Portion)	LEL: 1.1% UE:: 8.9%

10 - Stability and Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition.

Incompatibilities: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 - Toxicological Information

The oral toxicity of this product is estimated to be greater than 5,000mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

None of the components of this product is listed as a carcinogen or suspected carcinogen or is considered a reproductive hazard.

12 - Ecological Information

No data is currently available.

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Dispose in accordance with federal, state, and local regulations.

14 - Transportation Information

DOT Surface Shipping Description: Excepted from Hazmat(49CFR173.150 (F)) in non-bulk packagings. Bulk Packagings: Combustible Liquid, n.o.s. (contains Petroleum Distillates), NA1993, PG III

IMDG Shipping Description: UN1268, Petroleum Distillates, n.o.s. 3, PG III

15 - Regulatory Information

U.S. Federal Regulations:

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Acute Health, Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory

Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

Canadian WHMIS Classification: Class B-3 (Combustible Liquid)

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16-Other Information:

HMIS Hazard Rating:

Health - 1 (slight hazard), Fire Hazard - 2 (moderate hazard), Reactivity - 0 (minimal hazard)

SIGNATURE: _____

TITLE: Director of Global Quality Assurance

REVISION DATE May 2007

SUPERSEDES: February 2004

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo® 400 LE SAE 15W-40

Product Use: Engine Oil

Product Number(s): CPS222220

Company Identification

Chevron Products Company

a division of Chevron U.S.A. Inc.

6001 Bollinger Canyon Road

San Ramon, CA 94583

United States of America

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA International collect calls accepted. (800) 231-0623 or (510)231-0623

Product Information

email : lubemsds@chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil {C15 - C50}	Mixture	ao - 100 %weight
Zinc alkyl dithiophosphate	1168649-42-3	11 - 2 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES**FIRE CLASSIFICATION:**

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as a routine or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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!

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

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Eye/Face Protection:

When handling, it is possible wear safety glasses

No special eye protection is normally required. Wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, wear protective clothing depending on operations conducted.

Physical requirements and other substances in the workplace. Recommended materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required. If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentration of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Melting Point: Not Applicable

Specific Gravity: 0.87 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Volatile Organic

Compounds (VOC): 1.1 %weight

Viscosity: 6.6 cSt @ 100°C (212°F) (Min)

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components. No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion products is possible. For more information, visit <https://www.ebestchem.com/msdsServer/controller?module=com.chcvronlubcs.msds.bus.Bus...> 1/18/2009

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products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

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. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE

Ready Biodegradability: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR. or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL. NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc alkyl dithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required.

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All other components are listed or exempted from listing on EINECS.

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

1

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category: ENGINE OIL 1 - ENG1

REVISION STATEMENT: This is a new Material Safety Data Sheet.

Revision Date: July 24, 2006

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
ICAS - Chemical Abstract Service Number	
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.	

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.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: BARO-SEAL™ CLASSIC

Revision Date: 02-Jan-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BARO-SEAL™ CLASSIC

Synonyms: None

Chemical Family: Not applicable

Application: Additive

Manufacturer/Supplier: Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
contains no hazardous substances	Mixture	0- 100%	Not applicable	jNot applicable

3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye irritation.

4. FIRST AID MEASURES

Inhalation Under normal conditions, first aid procedures are not required.

Skin Under normal conditions, first aid procedures are not required.

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

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

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Is. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Lower (oz.lft3):	0.07
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 1, Flammability 1, Reactivity 0
HMS Ratings: Flammability 1, Reactivity 0, Health 1

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

if. HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 60 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Safety glasses.

Other Precautions None known.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:
Color:

Solid
Brown
BARO-SEAL_N CLASSIC

PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Cedar
pH:	Not Determined
Specific Gravity @20 C (Water-1):	0.93
Density@ 20 C (lbs./gallon):	Not Determined
Bulk Density @20 C (lbs/ft3):	10.5-17.5
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@20 C (centipoise):	Not Determined
Viscosity, Kinematic@20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	None known.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	None known.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined

Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Biodegradable
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

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

BARO-SEAL'™ CLASSIC

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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 For This Product	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	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian CSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

Inhalation: Remove to fresh air. If breathing apparatus is not available, artificial respiration. If breathing is difficult, get immediate medical attention.

Eye: None.

Skin: none.

Ingestion: none.

Symptoms: None.

05. FIRE FIGHTING MEASURES

Flash Point: Not applicable.

Auto ignition: 581°F (305°C) 1-1 min

Flammable Limits - Lower: 2.5%

Flammable Limits - Upper: 80%

Extinguishing Media: Carbon Dioxide, Dry Chemical, Water.

Fire Fighting Instructions: DO NOT extinguish a fire until the fire is out. Shut off the gas supply if possible.

possible. Explosive vapor could form. Keep adjacent cylinder cool by spraying with water until the fire burns itself out and the cylinders are cool. If a flame is extinguished and acetylene continues to escape, an explosive re-ignition could occur.

Excessive heat or fire will cause fusible metal pressure relief device to melt and release gas.

Acetylene to escape. Cylinders may rupture suddenly if sidewalls are exposed to direct flame impingement. Cylinders exposed to fire should not be moved until they have reached ambient temperature in the event of internal decomposition is taking place.

Hazardous Combustion Products: Carbon Monoxide, Carbon Dioxide.

Sensitivity To Static Discharge: Ignitable: Ignitable liquid.

Sensitivity To Mechanical Impact: Decomposition may occur.

06. ACCIDENTAL RELEASE MEASURES

If this material is released into a work area, evacuate the area immediately. Isolate

hazard area. Eliminate any possible sources of ignition. Provide maximum ventilation. Shut off source of acetylene, if possible. Isolate any leaking cylinder. If leaking from cylinder valve or fusible metal pressure relief device, contact your supplier. Do not enter a confined space or other area where the concentration is greater than 10% of the lower flammable limit which is 0.25%.

07. HANDLING AND STORAGE

Storage: Store and use only in a well-ventilated area. Cylinders should be separated from oxygen and other oxidizers by a minimum of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least

1/2 hour. Storage in excess of 2,500 cu. ft. is prohibited in buildings; other occupancies. Cylinders should be stored upright with a safety protection cap in place

and firmly secured to prevent falling or being knocked over. Protect cylinders from

physical damage. Do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Post "No Smoking or Open flames" signs in the storage or use

areas. There should be no sources of ignition. All electrical equipment should be explosion-proof in the storage and use areas. Storage areas must meet national electrical codes for hazardous areas.

Do not allow storage temperature to exceed 125°F (52°C). Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent

full containers from being stored for long periods of time.

Handling: All acetylene piping and associated equipment must be grounded. If non-sparking tools should be used. Do not use copper piping for acetylene service.

only steel or rough iron pipe should be used. An acetylene cylinder should be opened the minimum amount required to deliver acceptable flow, so that it can be closed quickly as possible in an emergency situation. Do not open acetylene cylinders more than one and one-half turns. Cylinder acetylene pressures of 15 psig. Acetylene cylinders are heavier than other cylinders because they are packed with a porous filler material and acetone. Leak check with soapy water; never use a flame. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into the openings. Doing so may damage the cylinder causing a leak to occur. Do not strike cap with a hammer. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. For additional precaution in using acetylene see Section 16 - Other Information.

When Using or Handling: Read and understand the manufacturer's instructions and the precautionary label on the products. See the American National Standard Institute (ANSI) Z 9.1 Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, Florida 33135 and the National Fire Protection Association (NFPA) 51 on Gas, Welding and Cutting.

08.

EXPOSURE CONTROLS - PERSONAL PROTECTION**Engineering Controls:**

Ventilation: Provide adequate natural or explosion-proof mechanical ventilation to ensure acetylene does not accumulate and reach its lower explosive limit of 2.5%

Personal Protective Equipment (PPE):**Skin Protection:**

Chemical: Cotton clothing is recommended for use to prevent static buildup.

Glasses: Safety glasses are recommended when handling cylinders.

Shoes: Safety shoes are recommended when handling cylinders.

Gloves: Work gloves are recommended when handling cylinders.

Respirator: Before entering area you must check for flammable and IDLH gas deficient atmosphere.

Respirator: Not required in general use.

Wear a NIOSH approved full-face piece airline respirator in the position where you are working in the oxygen deficient atmosphere (respirator will not function).

09.

PHYSICAL AND CHEMICAL PROPERTIES**Physical State:** Gas

Color: Colorless gas.

Odor: Acetylene of 100% purity is odorless but commercial purity has a distinctive garlic-like odor.

Molecular Weight: 26.04

Boiling Point: -103.5 F (-75°C) @ 10 psig

Specific Gravity: 0.906 At 60°F (15.6°C) @ 1 atm. (air = 1)

Freezing/Melting Point: -116°F (-82.2°C) @ 10 psig

Vapor Pressure: 635 psig. At 70°F (21.1°C)

Vapor Density: 0.0731-lb./cu.ft. (1.176kg./cu.m.) @ 60°F (15.6°C) @ 1 atm

Water Solubility: 1.1 Vol.-% (31 g/l) @ 60°F (15.6°C) at 1 atm

Expansion Ratio: of Acetylene Gas

pH: Not Applicable - Gas

Odor Threshold: 565 ppm

Evaporation Rate: of Acetylene Gas

Coefficient of Water/Oil Information: not available

Distribution:

10. STABILITY AND REACTIVITY

Chemical Stability: Instable. Stable as Shipped. Do not use at pressures above 15 psig (103 kPa).

Conditions To Avoid: Avoid mechanical shock.

Avoid high temperatures.

Incompatibility With Other Materials: Under certain conditions, acetylene can react with copper, silver, and mercurous materials to

form acetylides, compounds which can act as ignition sources. Bases

containing

less than 5% of copper in the alloy and certain nickel alloys are suitable for

use, but

service under pressure is not recommended. Acetylene can react with

combined

with oxygen and other oxidizing agents, including all halogens and halogen compounds.

The

presence of moisture, certain acids, or alkaline materials tends to enhance the

formation of explosive acetylides.

Hazardous Decomposition

Products: Hydrogen, Carbon

Hazardous Polymerization: Will not occur

11.

TOXICOLOGICAL INFORMATION

LC₅₀: 50% inhalation-man/5min

TCL₅₀: (Animals) 33% inhalation-man/7 min

Irritant; Of Material: Non-irritant.

Sensitization To Material: None.

Reproductive Effects: None.

Teratogenicity: None.

Mutagenicity: None.

Storage/Handling: Non-flammable.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No adverse ecological effects are expected. Acetylene does not contain any chlorine.

It is not listed in Class II of the listing of chemicals (40 (TR Part 81). Acetylene is not

classified as a marine pollutant in DOT (49 CFR Part 171).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

Container/cylinder cleaning should be returned to the supplier for safe and proper disposal.

14. TRANSPORT INFORMATION

DOT, ITO Shipping Name: Acetylene, dissolved

Hazard Class: 2.1 (Flammable Gas)

Identification Number: UN 1001

PG: 1001

Product RQ: None.

Shipping Label: Flammable Gas.

Special Shipping Information: Cylinders should be transported in a secure position. In a vehicle, cylinders should be secured.

Transportation Requirements: Acetylene gas cylinders are classified as hazardous materials and should be properly secured.

Label (When Required): Flammable Gas.

10101-THF, P, C, E

[Back to Material Safety Data Sheet](#)

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HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: DEXTRID®

Revision Date: 02-Jun-2007

M CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: DEXTRID
Synonyms: None
Chemical Family: Modified Starch
Application: Fluid Loss Additive
Not for use in the United States

Manufacturer/Supplier Baroid Fluid Services
Product Service line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

12. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Paraldehyde	30525-89-4	1 -5%	Not a licable	Not a licable
Complex carbohydrate		0-100%	10 m /m ³	15 m /m ³

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause allergic skin and respiratory reaction. Airborne dust may be explosive.

14. FIRST AID MEASURES

Inhalation If inhaled. remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.

Eyes In case of contact. or suspected contact. immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog. carbon dioxide. foam. dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential. Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0
HMIS Ratings: Flammability 1, Reactivity 0, Health 2

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Avoid dust accumulations.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 12 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. {95%}

Hand Protection Impervious rubber gloves.

Skin Protection Normal work coveralls.

Eye Protection Dust proof goggles.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: Off white

Odor: Pungent

DEXTRIO

19. PHYSICAL AND CHEMICAL PROPERTIES

pH:	Not Determined
Specific Gravity @ 20 C (Water-1):	1.5
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	30-44
Boiling Point/Range (f):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents {g/100ml):	Not Determined
VOES (lbs.lgallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong acids. Strong alkalis. Amines.
Hazardous Decomposition Products	Formaldehyde. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Causes severe respiratory irritation. May cause allergic respiratory reaction.
Skin Contact	May cause a rash and itching of the skin. May cause severe skin irritation. This product contains ingredients which may produce an allergic skin reaction. It should be treated as a skin sensitizer.
Eye Contact	May cause severe eye irritation.
Ingestion	Causes burns of the mouth, throat and stomach.
Aggravated Medical Conditions	Skin disorders. Eye ailments. Lung disorders.
Chronic Effects/Carcinogenicity	Paraformaldehyde may release formaldehyde monomer. a probable human carcinogen. Chronic exposures may cause cancer of the lung and nasal passages. Formaldehyde and possibly paraformaldehyde may react with hydrochloric acid to form bis-chloromethyl ether, a known human carcinogen.
Other Information	None known.
Toxicity Tests	

Oral Toxicity:	LD50: 800 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive/ Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

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

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: 360 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity:	TLM96: 538.900 ppm (Mysidopsis bahia) SPP@ 10 ppb
Acute Algae Toxicity:	Not determined

Chemical Fate Information	Not determined
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Other Information	Not applicable
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113. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
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Contaminated Packaging	Follow all applicable national or local regulations
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114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard 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	EPA Reportable Spill Quantity is 25000 Pounds based on Paraformaldehyde (CAS: 30525-89-4).
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	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	D28 Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative. For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.
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Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

it'A'END OF MSDS,,,.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

EMERGENCY OVERVIEW

CAUTION!

OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.
If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).



NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000

MSDS INTERNET WEBSITE: www.hess.com (See Environment. Health. Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel: Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel: Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES

Contact with liquid or vapor may cause mild irritation.

SKIN

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination. unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F {257 °C}
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

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LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire. but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction: stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confine spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle **as a** combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of static, a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSDS No. 9909

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." [Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

1. S. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	Exposure Limits		Note
		TWA/STEL		
Diesel Fuel: (68476-14-5)	OSHA	mg/m ³ as mineral oil mist		A3. Skin
	ACGIH	100 mg/m ³ (as totally hydrocarbon vapor) TWA		
Naphthalene (91-20-3)	OSHA	10ppmTWA		A4. Skin
	ACGIH	10 ppm TWA/ 15 ppm STEL		

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.



MATERIAL SAFETY DATA SHEET

Diesel Fuel AIT es

MSDS No. 9909

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR

Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1): > 1.0
SPECIFIC GRAVITY (H₂O = 1): 0.83 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers: Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute dermal LD₅₀ (rabbits): > 5 ml/kg
Primary dermal irritation: extremely irritating {rabbits}
Guinea pig sensitization: negative
Acute oral LD₅₀ (rats): 9 ml/kg
Draize eye irritation: non-irritating {rabbits}

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types**MSDS No. 9909**

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3. PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic)	
	UN 1202 (International)	
DOT SHIPPING LABEL:	None	



Use Combustible Placard if
shipped in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL STATE and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312. HAZARD CLASSES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X		

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Date Listed</u>
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)



MATERIAL SAFETY DATA SHEET

Diesel Fuel All Types

MSOS No. 9909

11. OTHER INFORMATION

NFPA® HAZARD RATING

HEALTH:	0
FIRE:	2
REACTIVITY:	0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS®HAZARD RATING

HEALTH:	1,	* Chronic
FIRE:	2	
PHYSICAL:	0	

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP OPA	National Toxicology Program Oil Pollution Act of 1990
AIHA	American Industrial Hygiene Association	OSHA	U.S. Occupational Safety & Health Administration
ANSI	American National Standards Institute (212) 642-4900	PEL	Permissible Exposure Limit (OSHA)
API	American Petroleum Institute (202) 682-8000	RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	REL SARA	Recommended Exposure Limit (NIOSH) Superfund Amendments and
DOT	U.S. Department of Transportation [General info: (800) 467-4922]	SCBA	Reauthorization Act of 1986 Title III Self-Contained Breathing Apparatus
EPA	U.S. Environmental Protection Agency	SPCC	Spill Prevention, Control, and Countermeasures
HMIS	Hazardous Materials Information System	STEL	Short-Term Exposure Limit (generally 15 minutes)
IARC	International Agency For Research On Cancer		
MSHA	Mine Safety and Health Administration	TLV	Threshold Limit Value (ACGIH)
NFPA	National Fire Protection Association (617)770-3000	TSCA	Toxic Substances Control Act
NIOSH	National Institute of Occupational Safety and Health	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	WHMIS	Canadian Workplace Hazardous Materials Information System

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Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

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

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **EZ-MUD® PLUS**

Revision Date: 03-Jan-2008

11. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD® PLUS
Synonyms: None
Chemical Family: Blend
Application: Additive

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

12. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
hydrotreated light petroleum distillate	4742-47-8	10 - 30%	00 mg/m ³	jNot applicable

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

14. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration. preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated shoes and discard.

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

Ingestion Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

Notes to Physician Not Applicable

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not DeterminedMin: > 200
Flash Point/Range (C):	Not DeterminedMin: > 93
Flash Point Method :	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing **Media** Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 2, Flammability 1, Reactivity 0

HMIS Ratings: Flammability 1. Reactivity 0. Health 2

16. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

17. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 12 months.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.
Respiratory Protection	Organic vapor respirator with a dust/mist filter.
Hand Protection	Impervious rubber gloves.
Skin Protection	Rubber apron.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Liquid

Color:

White to gray

Odor:

Mild hydrocarbon

19. PHYSICAL AND CHEMICAL PROPERTIES

pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.0
Density @ 20 C (lbs./gallon):	8.3
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	347
Boiling Point/Range (C):	175
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	70
Evaporation Rate (Butyl Acetate=1):	<1
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@20 C (centipoise):	Not Determined
Viscosity, Kinematic@20 C (centistokes):	Not Determined
Partition Coefficientn-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

111. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness. incoordination, slowed reaction time. slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing. coughing up blood and pneumonia. which can be fatal. May cause central nervous system depression including headache, dizziness. drowsiness. muscular weakness, incoordination. stowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.
Aggravated Medical Conditions	Lung disorders.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.

Other Information None known.

Toxicity Tests

Oral Toxicity: Not detennined

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity Not determined

Genotoxicity: Not determined

Reproductive / Not determined

Developmental Toxicity:

M2. 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: TLM48: 98 mg/l (Acartia tonsa)

Acute Algae Toxicity: EC50: 16.70 mg/l (Skeletonema costatum)

Chemical Fate Information Not detennined

~~**Other Information** Not applicable~~

113. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TOG

Not restrided

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: EZ-MUD GOLD

Revision Date: 02-Jun-2007

CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD GOLD

Synonyms: None

Chemical Family: Anionic Polymer

Application: Additive

Manufacturer/Supplier Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77051
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

COMPOSITION AND INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Contains no hazardous substances	Mixture	0-100%	Not applicable	Not applicable

HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin irritation. Airborne dust may be explosive.

FIRST AID MEASURES

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

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

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

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

15. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air- Lower(%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Special Exposure Hazards	Decomposition in fire may produce toxic gases. Organic dust <i>in the presence of an</i> ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.
NFPA Ratings:	Health 1, Flammability 0, Reactivity 0
HMIS Ratings:	Flammability 0, Reactivity 0, Health 1

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust. Slippery when wet.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Slippery when wet.
Storage Information	Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 36 months.

@. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Respiratory Protection	Dust mist respirator. (95%) Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

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PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Granules
Color:	Off white
Odor:	Odorless
pH:	7.75 (1%)
Specific Gravity@20 C (Water-1):	0.8-1.0
Density @ 20 C (lbs/gallon):	6.66-8.33
Bulk Density @ 20 C (lbs/ft ³):	52
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs/gallon):	Not Determined
Viscosity, Dynamic@ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	None known.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Toxicity Tests

None known.

Oral Toxicity:	LD50: > 5000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive/ Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not readily biodegradable.
Bio-accumulation	It will not bio-accumulate.

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: >1000 mg/l (Pimephales promelas)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	EC50: > 500 mg/l (Selenastrum capricornutum)
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA {311,312} Hazard Class	None
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	The California Proposition 65 regulations apply to this product.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of

the user.

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Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Lubricating Oil, Gear

Product Use: Gear Lubricant 5396

Product Number(s): 9150-01-035-5393, 9150-01-035-5394, 9150-01 035-5395, 9150-01-0 5-

Synonyms: Lubricating Oil, Gear - 80W90 Gear Oil, Lubricating Oil, Gear - 85W140 Gear Oil

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA International collect calls accepted. (800) 231-0623 or 510 231-0623

Product Information

email : lubemsds@chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS		
COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15-C50)	Mixture	80 - 95 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

Material Safety Data Sheet

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 180 °C {356 °F} (Min)

Autoignition: No Data Available

flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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 returned to a drum reconditioner or disposed of properly.

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 illustrations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective

clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested

Material Safety Data Sheet

materials for protective gloves include: 4H (PE/ V L), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required below the occupational exposure limit for If user operations generate an oil mist, determine if airborne concentrations are assured concentrations of this material. If not, wear an approved respirator that provides adequate protection from the mist of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15-C50)	ACGIH	5mg/m3	10mg/m3		
Highly refined mineral oil (C15-C50)	OSHA-1	5mg/m3			

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg@ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >371°C (699.8°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Specific Gravity: 0.88 - 0.92@ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Viscosity: 13.7 cSt @ 100°C 212°F Min

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMO CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

11

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 = IARC Group 1	03 = EPCRA 313
01-2 A = IARC Group 2A	04 = CA Proposition 65
01-2B = IARC Group 2B	05 = MA RTK
02 = NTP Carcinogen	06 = NJ RTK
	07 = PARTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AfCS (Australia), DSL (Canada) EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States)-

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Gear oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

11

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

<https://www.rw.cbest.chevron.com/msdsServer/controller?module=com.chevron.lubes.msds.bus.Bus. /18/2009>

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE_- Person Protection Equipment Recommendation, -
Chronic Effect Indicator). These values are obtained using the updated publications prepared by
National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet:
2,5,8,9,10,11,14,15,16

Revision Date: 06/05/2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT.

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	IPEL - Permissible Exposure Limit
	ICAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Lubricating Oil, Gear

Product Use: Gear Lubricant

Product Number(s): 9150-01-035-5393, 9150-01-035-5394, 9150-01-035-5395, 9150-01-0 5-5396

Synonyms: Lubricating Oil, Gear - 80W90 Gear Oil, Lubricating Oil, Gear - 85W140 Gear Oil

Company Identification

Chevron Products Company

a division of Chevron U.S.A. Inc.

6001 Bollinger Canyon Road

San Ramon, CA 94583

United States of America

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPONEN INFORMATION ON INGREDIENTS

COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15-C50)	Mixture	80 - 95 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

Material Safety Data Sheet

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 180 °C {356 °F} (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective

clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested

Material Safety Data Sheet
materials for protective gloves include: 4H (PE/ V L), Nitrite Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required:

i 0 : : : x exposure limit for

If user operations generate an oil mist, determine if airborne concentrations are low or high. If concentrations are high, wear an approved respirator that provides adequate protection. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits

Component	Agency	TWA	STEL	Limiting	Notation
Highly refined mineral oil (C15-C50)	ACGIH	5mg/m3	10mg/m3		
Highly refined mineral oil (C15-C50)	OSHAZ-1	(5mg/m3	-	-	-

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >371°C (699.8°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Specific Gravity: 0.88 - 0.92 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Viscosity: 13.7 cSt @ 100°C 212°F Min

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans A3.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

IsEcTtON 14 TRANSPORT INFORMATION

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1-IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MARTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: **PETROLEUM OIL** (Gear oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Indecommendation.- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet
2,5,8,9,10,11,14,15,16

Revision Date: 06/05/2006

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
	ICAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX • Chevron	NFPA- National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: HY-SEAL®

Revision Date: 02-Jan-2007

11. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HY-SEAL®
Synonyms: None
Chemical Family: Carbohydrate
Application: Additive
Manufacturer/Supplier: Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000
Prepared By: Chemical Compliance
Telephone: 1-580-251-4335

12. COMPOSITION INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
cellulose	004-34-6	0-100%	110 mg/m ³	15 mg/m ³

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye irritation. Airborne dust may be explosive.

14. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin Wash with soap and water. Get medical attention if irritation persists.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion Under normal conditions, first aid procedures are not required.
Notes to Physician Not Applicable

FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower(%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 0

ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 60 months.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls None known.

Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Safety glasses.

Other Precautions None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

HY-SEAL®
Page 2 of 5

Color:
Odor:
pH:
Specific Gravity @ 20 C (Water-1):
Density @20 C (lbs/gallon):

Solid
White to off white
Odorless
Not Determined
1.4
Not Determined

Jg. PHYSICAL AND CHEMICAL PROPERTIES

Bulk Density @ 20 C (lbs/ft3):	2.5- 8.3
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Not applicable
Solubility in Solvents (g/100ml):	Not Determined
VOCS (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

110. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

ft1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	None known.
Skin Contact	None known.
Eye Contact	May cause mechanical irritation to eye.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Primary Irritation Effect:
Toxicity Tests	
Oral Toxicity:	
Dermal Toxicity:	
Inhalation Toxicity:	

None known.

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Not determined

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Carcinogenicity Not detennined

Genotoxicity: Not detennined

**Reproductive /
Developmental Toxicity:** Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soll/Air) Not determined

Persistence/Degradability Readily biodegradable

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

113. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TOG

Not restricted

ADR Not restricted

Air Transportation

ICAO nATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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 For This Product	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	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

116. OTHER INFORMATION

The following sections have been revised since the last issue of this MSOS

Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

Material Safety Data Sheet.

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Hydraulic Oil AW

Product Use: Hydraulic Oil

Product Number(s): CPS255673, CPS255674, CPS255675

Synonyms: Chevron AW Hydraulic Oil ISO 32, Chevron AW Hydraulic Oil ISO 46, Chevron AW Hydraulic 011 ISO 68

Company Identification

Chevron Lubricants Canada Inc.

Lubricants Chevron Canada

6975-A Pacific Circle

Mississauga, ONT L5T 2H3

Canada

www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email: lubemsds@Chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	90 - 100 %weight

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with

<https://www.cbest.chevron.com/msdsServer/controlJer?module=com.chevron.lubes.msds.bus.Bus.> 1/18/2009

water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes contaminated with the material from skin. Use soap and water. Discard contaminated clothing and shoes or thoroughly clean them.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin.

an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of redness, swelling, discoloration, and intense throbbing in the area.

Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 170 °C (338 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Report: Report spills to local authorities as a routine or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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 returned to a drum reconditioner or disposed of properly.

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashmg 1s p ss1ble, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure hm_rt for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15- C50)	ACGIH	5mg/m3	10 mg/m3	-	-

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection. Use and Care of Res irators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Yellow

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg@37.8 °C (100 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbon solvents; insoluble in water.

Freezing Point: Not Applicable

Specific Gravity: 0.86 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)

Density: 0.86 kg/l - 0.9 kg/l @ 15°C (59°F)

Volatile Organic

Compounds (VOC) : <2.1 %weight

Viscosity: 28.8 est@ 40°C (104°F) (Min)

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTMTY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents such as chlorates nitrates peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

- **Irritation:** The eye i ti n hazard i based on evaluation of data for similar materials or product components.

- **Skin Irritation:** The skin i m tation hazard 1s based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: LD50: >5g/kg (rabbit). The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: LOSO: >5 g/kg (rat) The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar material or product components. For additional information on the acute toxicity of the components, call the technical information center.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a hazard warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NT) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

48 hour(s) EC50: >1000 mg/l (Daphnia magna)

96 hour(s) LC50: >1000 mg/l (Oncorhynchus mykiss)

This material is not expected to be harmful to aquatic organisms.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. 600/92 Waste Management Act, R.R.O. 1990, Reg. 347 General-Waste Management C.C.S.M.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TOG REGULATIONS

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1 = IARC Group 1

01-2 A = IARC Group 2A

01-2B = IARC Group 2B

35 = WHMIS IDL

No components of this material were found on the regulatory lists above.

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CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirements: AICS (Australia)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: 06/06/2006

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:

Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet 9,15

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Pennissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSOS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

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 infonnation is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

HALLIBURTON**MATERIAL SAFETY DATA SHEET**Product Trade Name: **IDP-214**

Revision Date: 00.Jan..2005

II. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: IDP-214
Synonyms: None
Chemical Family: Organic hydrocarbon
Application: Lubricant
Manufacturer/Supplier: Baroid OriUing Fluids
 a Product SeJVfce Line or HaHiburtcn Energy Services, Inc.
 p_o, Box 1675
 Houston, TX 77251
 Telephone: (281) 871-4000
 Emergency Tel hone: (281) 575-5000
Prepared By: Chemical CompUance
 Te'8phone: 1-58Q..251-43S5

III. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Butene, homopolymer	9003-29-6	1 - 5%	Not applicable	Not applicable
Muscovite	1318-84-1	8-10%	Not applicable	Not applicable
Talc	14807-96-8	2-10%	2 mg/m ³	15 mg/m ³
Aluminum, benzoate C16-18 fatty acids hydroxy complexes	82980-54-9	10 - 30%	Not applicable	Not applicable
Hydrotreated heavy naphtherio distillate	64742-62-6	30-50%	Not applicable	Not applicable
Hydrotreated residual petroleum	64742-67-0	30-50%	Not applicable	Not applicable

IV. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin irritation.

V. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.

Eye In case of contact. Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Other Precautions

Eyewash fountains and safety showers must be easily accessible.

! • PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Semi-Solid
Color:	Amber to brown
Odor:	Hydrocarbon
pH:	7
Specific Gravity @ 20 C (Water=1):	1.00
Density @ 20 C (lbs./gallon):	8.33
Bulk Density @ 20 C (lbs/ft ³):	Not Determined
Bailing Point/Range (F):	<600
Boiling Point/Range (C):	< 316
Freezing Point/Range (F):	>450
Freezing Point/Range (C):	>232
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	>5
Percent Volatile:	0
Evaporation Rate (Butyl Acetate=1):	<0.01
Solubility in Water (g/100 ml):	Insoluble
Solubility in Solvents (g/100 ml):	Not Determined
VOC (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

Ho. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide. Oxides of nitrogen.
Additional Guidelines	Not Applicable

ft. TOXICOLOGICAL INFORMATION

Principal Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Massive Inhalation may be harmful.
Skin Contact	May cause an allergic skin reaction.
Eye Contact	May cause eye irritation.
Ingestion	Large doses may cause nausea, vomiting and diarrhea.

Aggravated Medical Conditions None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Other Information None known.

IDP-214

Toxicity Tests

Oral Toxicity:	LO50: > 2000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Bioavailability	Not determined
Bioaccumulation	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

13. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging	If empty container retains product residues, an label precautions must be observed. Store away from ignition sources. Transport with all closures in place. Return for reuse or disposal according to national or local regulations.

14. TRANSPORT INFORMATION**Land Transportation**

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG

Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory AJI components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311.312) Hazard Class Acute Health Hazard
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 For This Product 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 All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law One or more components listed,

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

Canadian Regulations

Canadian DSL Inventory Product contains one or more components not listed on inventory.

WHMIS Hazard Class Uncontrolled

16. OTHER INFORMATION

The following sections have been revised since the last issue of this **MSDS**
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-800-251-4335.

Disclaimer & 1 itemen1

Trns information is furnished without warranty, expressed or impHed. as to accuracy or completeness. The Information i\$ obtained from various sources lnoluding the manufacturer and ether third party sources. The information may not be vafid under all conditions nor if this material is wed in combination with other materials *or* in any process. Final determination of 8'.litabHity of any materiati is the10le responsiblHty of the user.

"•END OF MSDS"-

JET-LUBE, INC.

MATERIAL SAFETY DATA SHEET

Chemical Family: Petroleum based lubricating grease
Use: Drill string compound and anti-seize lubricant

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Ho:itvn T- 7:0:18 u :t 74-7G :-
Err:lfllf-c.v Phom: ill 7-16t7 .fll: ':-;H<!
- JIJ AJ: Q.C:..9Y..Q

Ha. trall. In. Coin. V	CASNo	OSHA PEL	ACGNI TLV	Chim. Limits of Exposure
Met: Hl...; Ci...; a:	Eol.: G25; "1"1": .5	MA-Smp. 25		STEL:
"lrs...; i.a...; SJ Gr.	f.-(.4); 25	MA		ST... UN
	1 ; en,			
	1Q2E?5lf.?!s5			
	148."2lf & 1.1.f.1			

Eyes: May cause irritation. **Inhalation:** Various nature may block breathing passages if inhaled. **Ingestion:** May cause diarrhea.

Skin: For hypersensitive persons, may irritate the skin after prolonged periods of contact.

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Signature: _____

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Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Dura-Lith® Grease EP

Product Use: Grease

Product Number(s): CPS254593, CPS254595, CPS254596, CPS254597, CPS254598

Synonyms: Chevron Dura-Lith® Grease EP NLGI 0, Chevron Dura-Lith® Grease EP NLGI 00, Chevron Dura-Lith® Grease EP NLGI 000, Chevron Dura-Lith® Grease EP NLGI 1, Chevron Dura-Lith® Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email: lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CASNUMBER	AMOUNT
Highly refined mineral oil (C15 - CS0)	Mixture	70 - 95 %weight
Zinc dialkyldithiophosphate	168649-42-3	< 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum Jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 200 °C (392 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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 ?SHA Standard 29 CFR 1910.116 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77. Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

Container Warning: 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 pressure, 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.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NT) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confined animal carcinogen with unknown relevance to humans (A3).

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313
01-2 A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MARTK
02=NTP Carcinogen	06=NJ RTK
	07-PARTK

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

Zinc dialkyldithiophosphate 03, 06

..&Yl.....&UU ..,c:u L.Y .L/<llc:l neet

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements; EINECS (European Union), ENCS (Japan), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: DSL (Canada), IECSC (China). PICCS (Philippines).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:SA-1 et seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

It SECTION 16 OTHER INFORMATION

ti

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

{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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1,2,7,10,14-16

Revision Date: 12/05/2005

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

MATERIAL SAFETY DATA SHEET

BIO-CUT

SECTION I- Product Identification

MANUFACTURER'S NAME: Control Chemical (1989) Corporation
MANUFACTURER'S ADDRESS: 7016, 30th Street S.E.
Calgary, Alberta, Canada
T2C 1N9
EMERGENCY PHONE NUMBER: (403) 720-7044
SUPPLIER IDENTIFIER:
SUPPLIER'S ADDRESS:
SUPPLIER'S EMERGENCY PHONE NUMBER:
PRODUCT IDENTIFIER: BIO-CUT
PRODUCT USE:

SECTION II-Hazardous Ingredients of Materials

Chemical Identity	Concentration	CAS#/NA#/UN#	LD (50)	LC (50)
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This is not a hazardous or controlled product.

SECTION ID - Physical Data for Product

PHYSICAL STATE: Liquid
ODOUR AND APPEARANCE: Dark brown, distinctive
ODOUR THRESHOLD:
SPECIFIC GRAVITY: 0.887
VAPOR PRESSURE: Not established
VAPOR DENSITY (Air = 1): Not established
EVAPORATION RATE: Not established
BOILING POINT: Not established
FREEZING POINT: -25 degrees C
pH: 7.0- 7.2
DENSITY (g/ml):
COEFFICIENT OF WATER/ OIL
DISTRIBUTION: Not available

SECTION IV - Fire and Explosion Hazard of Product

CONDITIONS OF FLAMMABILITY:	
MEANS OF EXTINCTION:	HAZARDOUS COMBUSTION PRODUCTS:
FLASHPOINT AND METHOD OF DETERMINATION:	EXPLOSION DATA:
UPPER EXPLOSION LIMIT(% by Vol):	SENSITIVITY TO STATIC DISCHARGE:
LOWER EXPLOSION LIMIT(% by Vol):	
AUTO-IGNITION TEMPERATURE:	
FLAMMABILITY CLASSIFICATION:	

Foam, CO2, Dry chemical, water spray

290 degrees C C.C.

Not established

Not
established
Not
available

Not
available
Not
available
None

#II BOC GASES

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: OXYGEN

1. Chemical Product and Company Identification

BOC Gases,
Division of
The BOC Group, Inc.
57S Mountain Avenue
Murray Hill, NJ 07974

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 1
Mississauga, Ontario L5R 1JW6

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE NUMBER:
CHEMTREC (800) 424-9300

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE NUMBER:
(905) 501-0802
EMERGENCY RESPONSE PLAN NO: 20101

PRODUCT NAME: OXYGEN
CHEMICAL NAME: Oxygen
COMMON NAMES/SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2 (5.1)
WHMIS CLASSIFICATION: A, C

PREPARED BY: Loss Control (908)464-8100/(905)501-1700

PREPARATION DATE: 6/1/95

REVIEW DATES: 6/1/96

2. Composition, Information on Ingredients

INGREDIENT	%VOLUME	PEL-OSHA ¹	TLV-ACGIW	LD50 or L Route/Species
Oxygen FORMULA: O ₂ CAS: 7782-44-7 RTECS #: RS2060000	99.6 to 100.0	Not Available	Not Available	Not Available

¹ As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

² As stated in the ACGIH 1994.95 Threshold Limit Values for Chemical Substances and Physical Agents

3. Hazards Identification

EMERGENCY OVERVIEW

Elevated oxygen levels may result in cough and other pulmonary changes. High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which included cramps, nausea, dizziness, hypothermia, amblyopia, respiration difficulties, bradycardia, fainting spells and convulsions capable of leading to death. Nonflammable. Oxidizer, will accelerate combustion.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
No	No	No	Yes	No

MSDS: G-1
Revised: 6/1/96

PRODUCT NAME: OXYGEN

HEALTH EFFECTS:

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen Yes
Synergistic Effects None known		

Carcinogenicity: -- "TP: No IARC: No OSHA: No

EYE EFFECTS:

Adverse effects not anticipated.

SKIN EFFECTS:

Adverse effects not anticipated.

INGESTION EFFECTS:

Adverse effects not anticipated.

RESPIRATION EFFECTS:

High concentrations of oxygen (greater than 75%) causes symptoms of hyperoxia which include cramps, nausea, dizziness, hypothermia, ataxia, respiratory difficulties, bradycardia, fainting spells and convulsions capable of leading to death. The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75% present a risk of inflammation of organic matter in the body.

Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

NFPA HAZARD CODES

Health: 0
Flammability: 0
Reactivity: 0

HMIS HAZARD CODES

Health: 0
Flammability: 0
Reactivity: 0

RATINGS SYSTEM

0= No Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4= Severe Hazard

4. First Aid Measures

EYES:

Never introduce ointment or oil into the eyes without medical advice. If pain is present, refer the victim to an ophthalmologist for treatment and follow up.

SKIN:

Remove contaminated clothing and flush affected areas with lukewarm water. If irritation persists, seek medical attention.

INGESTION:

Ingestion is not anticipated.

PRODUCT NAME: OXYGEN

""HALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Further treatment should be symptomatic and supportive. Inform the treating physician that the patient could be experiencing hypoxia.

5. Fire Fighting Measures

Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEU%): None	UEL(%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS:

High oxygen concentrations vigorously accelerate combustion.

EXTINGUISHING MEDIA:

Water spray to keep cylinders cool. Extinguishing agent appropriate for the combustible material.

FIRE FIGHTING INSTRUCTIONS:

If possible, stop the flow of oxygen which is supporting the fire.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective clothing. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage**Electrical classification:**

Nonhazardous

Dry product is noncorrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO₂, Cl₂, salt, etc. in the moisture enhances the rusting of metals in air.

Carbon steels and low alloy steels are acceptable for use at lower pressures.

For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass and silicon alloys, Monel ® Inconel ® and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon®, Teflon® composites, or Kcl-F® are preferred non-metallic gasket materials.

Check with the supplier to verify oxygen compatibility for the service conditions.

Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants.

MSDS: G-1

Revised: 6/96

PRODUCTNAME: OXYGEN

Stationary customer site vessels should operate in accordance with the manufacturer's and BOC's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest BOC location immediately.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage area and use area. There should be no sources of ignition in the storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14 and Safety Bulletin SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

EXPOSURE LIMITS¹

INGREDIENT	%VOLUME	PEL-OSHK	TLV-ACGIH	LD50 or LC50 Route/Species
Oxygen FORMULA: O ₂ CAS: 778244-7 RTECS #: RS2060000	99.6 to 100.0	Not Available	Not Available	Not Available

¹ Refer to individual state of provincial regulation, as applicable, for limits which may be more stringent than those listed here.

: As stated in 29 CFR 1910. Subpart Z (revised July 1, 1993)

* As stated in the ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:

Use local exhaust to prevent accumulation of high concentrations that increase the oxygen level in air to more than 25%.

EYE/FACE PROTECTION:

Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION:

Protective gloves made of any suitable material appropriate for the job.

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower.

PRODUCT NAME: OXYGEN

9. Physical and Chemical Properties

PARAMETER	VALUE	ITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Above critical temp.	
Vapor density (Air= 1)	: 1.11	
Evaporation point	: Not Available	
Boiling point	: -297.3	°F
	: -32.9	°C
Freezing point	: -361.8	°F
	: -218.8	°C
pH	: Not Applicable	
Specific gravity at STP	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slightly soluble	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas.	

10. Stability and Reactivity

STABILITY:

Stable.

INCOMPATIBLE MATERIALS:

All flammable materials.

HAZARDOUS DECOMPOSITION PRODUCTS:

None.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. Toxicological Information

MUTAGENIC:

Oxygen concentrations between 20 to 95% have produced genetic changes in mammalian cell assay test systems.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

PRODUCT NAME: OXYGEN

14. Transport Information

PARAMETER	United States DOT	canadaTDG
PROPER SHIPPING NAME:	Oxygen, compressed	Oxygen, compressed
HAZARD CLASS:	2.2	2.2 (5.1)
IDENTIFICATION NUMBER:	UN 1072	UN 1072
SHIPPING LABEL:	NONFLAMMABLE GAS. OXIDIZER	NONFLAMMABLE GAS. OXIDIZER

15. Regulatory Information

SARA TITLE III NOTIFICATIONS A: "D INFORMATION

SARA TITLE III - HAZARD CLASSES:

Fire Hazard

Sudden Release of Pressure Hazard

16. Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: PAC-L PREMIUM

Revision Date: 02-Jan-2007

11. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: PAC-L PREMIUM
Synonyms: None
Chemical Family: Carbohydrate
Application: Fluid Loss Additive

Manufacturer/Supplier Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

12. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CASNumber	PERCENT	ACGIHTLV-TWA	OSHA PEL-TWA
Cellulose derivative		160-100%	Not applicable	Not applicable

13. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

14. FIRST AID MEASURES

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

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

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

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

15. FIRE FIGHTING MEASURES

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	430
Flash Point/Range (C):	221
Flash Point Method:	Not Determined
Autoignition Temperature (F):	752
Autoignition Temperature (C):	400
Flammability Limits in Air • Lower (%):	Not Determined
Flammability Limits in Air • Upper(%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can b_e explo v i hig concentrations. Good housekeeping practices are required to m1n1m1ze this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Flammability 0, Reactivity 0, Health 0

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary MeasuresAvoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

- HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations. Slippery when wet.

Storage Infonnation Store away from oxidizers. Store in a dry location. Product has a shelf life of 36 months.

18. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

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

Other Precautions None known.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Color: White to tan

10. PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Odorless
pH:	6.5-9 (1%)
Specific Gravity @ 20 C (Water-1):	1.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	40-55
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Forms gel
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs/gallon):	Not Determined
Viscosity, Dynamic @20 C (centipoise):	Not Determined
Viscosity, Kinematic @20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

11. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

12. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 1260 mg/kg (Rat)
Dermal Toxicity:	Not determined

Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: > 500 mg/l (Golden orfe)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	AU components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
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	AU components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	AJL components listed on inventory.
WHMIS Hazard Class	Un controlled

16. OTHER INFORMATION

The **following** sections **have** been **revised** since the last issue of this **MSDS**
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **PAC-R PREMIUM**

Revision Date: 26-Jul-2004

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: PAC-R PREMIUM
Synonyms: None
Chemical Family: Carbohydrate
Application: Fluid Loss Additive

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Cellulose derivative		0-100%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

14. FIRST AID MEASURES

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

Skin: Wash with soap and water. Get medical attention if irritation persists.

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

Ingestion: Under normal conditions, first aid procedures are not required.

Notes to Physician: Not Applicable

5. FIRE FIGHTING MEASURES

- FIRE FIGHTING MEASURES

Flash Point/Range (F):	430
Flash Point/Range (C):	221
Flash Point Method:	Not Determined
Autoignition Temperature (f):	752
Autoignition Temperature (C):	400
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Organic dust in the presence of an ignition source can e explos i hig concentrations. Good housekeeping practices are reqwed to m1nim1ze this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 0

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary MeasuresAvoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

if. HANDLING AND STORAGE

Handling Precautions Avoid creating or inhaling dust. Avoid dust accumulations. Slippery when wet.

Storage Information Store away from oxidizers. Store in a dry location. Product has a shelf life of 36 months.

@. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls A weU ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. {95%}

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

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

Other Precautions None known.

- PHYSICAL AND CHEMICAL PROPERTIES **Physical State:**

Powde

r VWhite

to tan

10. PHYSICAL AND CHEMICAL PROPERTIES

Odor:	Odorless
pH:	6.5-9 (1%)
Specific Gravity@20 C (Water=1):	1.6
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	40-55
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air-1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Forms gel
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic@20 C (centistokes):	Not Determined
Partition Coefficientln-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

11. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause mild respiratory irritation.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	Dermal Toxicity:
Toxicity Tests	
Oral Toxicity:	

None known.

LD50: 1260 mg/kg (Rat)

Not determined

Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable
Bio-accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: > 500 mg/l (Golden orfe)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: QUIK-GEL GOLD™

Revision Date: 12-Sep-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEL GOLD¹
Synonyms: None
Chemical Family: Mineral
Application: Viscosifier
Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000
Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
crystalline silica, cristobalite	14464-46-1	0-1%	0.025 mg/m ³	112 x 10 ⁻³ mg/m ³ %SiO ₂ +2
amorphous silica, tridymite	15468-32-3	10-1%	0.05 mg/m ³	11/2 x 10 ⁻³ mg/m ³ %SiO ₂ +2
crystalline silica, quartz	14808-60-7	1-5%	0.025 mg/m ³	10 mg/m ³ %SiO ₂ +2
Bentonite	1302-78-9	100-100%	Not applicable	Not applicable

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

3. HAZARDS IDENTIFICATION



INTERNATIONAL INDUSTRIAL GASES LTD.

HOME | OUR VISION | PRODUCTS : MARKET SERVED | CUSTOMER RESPONSE | TECHINFO | MSDS INFO | SAFETY INFO | FEEDBACK | CONTACT INFO

Product Name:	Propane	
ChemicalName:	Propane	
Formula:	C3 H8	4
ChemicalFamily:	Alkane (hydrocarbon)	0
Use:	Various	
Synonyms:	Dimethylmethane, LP-Gas, Liquefied petroleum gas (LPG)	

NFPA Fire:	4	HMIS Fire:	4	Acute:	No
NFPA Health:	1	HMIS Health:	0	Chronic:	No
NFPA Reactivity:	0	HMIS Reactivity:	0	Fire:	Yes
NFPA Special Hazard:		Mixture:	No	Reactive:	No
				Sudden Release Pressure:	Yes

02. INGREDIENTS: COMPOSITION & INFORMATION

COMPONENT		PERCENT		EXPOSURE GUIDELINES	
CAS No.	(BY WT.)	OSHA - TWA	ACGIH - STEL		
Propane LOSO: None. LC50: No ne.	74-98-Q	99.0%	100.0%	1000	Simple Asphyxiant

03. HAZARDS IDENTIFICATION

1:\11.R<iE CY 0"\"[R VI!:.\\":	
\\'a ming:	Flammabl: liquid g:is und.:r prt:ssIm.: Can form explo,i,: mi:.,tl lrcs with air. \\la:,- cause frosth:it:..
l'>tt:ntial lkalth Elfocts Information:	
Routes of Ex!(>sun:	
Inhalation:	Simple asph :.,ian1. It should C>'not.:d that hcfore sulfoc.itioncou!J oc...ur. th.: lo" cr tlammahili limit L>l'prnpae in air \\Ould be c:.,cccus:d: possihl:- causing both an o,\g@a-d.:tici.:nt and c,plosile mmosphen: . l , po,ur.: to conc.:ntrati<•n, (>1 %) ma:,- caus.: di?J:ins:ss.,E. posur to atmosphert:s containing 8-10%or kss ox:.,gen will bring about un, onsciuiu nc,s "ithout warning . and so quid!:- thar the inJi, iduals cannot hdp or protect th<:mss:h ...: . laci; ot sufot:i<:nt o:,-g.:n ma cause: seriou injury or death.
L:,-c Contact:	Contact "ith liquid or col,d apor can ...:au,c: free,ing oi tiss ue.
Skin Contact:	Comae! "ith liquid or rnIJ,apor can c-aus...: frL•,tbite.
Chronil: Elli::ct:.,	:--:one.
:vkdcial Condiioi1ls .-\\ggra , atcd B	\\:l)rn .
Overcx posun::	
Oth...:r Effect, Oi'<h.:rt:xposur:::	\\:uni!.
:<a reinogcnicit: :	Propane is not lbtcd h :\\ rt' . OSHA or IARC'

04. FIRST AID MEASURES

Inhalation: P e r s o n s s u l l i : r i n g f r o m l a c k o f o : , , g e n , h o u l d b e r < : m u : , d 1 0 f r c , h a i r . I f , i c t i m i s n o t b r : a t h i n g . a d m i n i , t e r a r t i t k a l r < , p i r a l i o l . . I f b n : a t h i n g i s d i f f i c u h . a d m i n i s t r o x : - g e n . O b t a i n p r o m p t m e d i c a l a t , < n t i o n .

E : - : : C o n t a c t \ " i t h l i q u i d o r c o l , d - a p o r i : a n c l u s e f r e e z i n g 0 - 1 l i , s u : . G e n t l l u , h c e s " i t h l u k e w a r m , , m e r . O b t a i n m : d i c a l a u : n t i o n i m m e d i : t t d) .

Skin: Contact with liquid or cold vapor can cause frostbite. Immediately remove affected

http://www.iigas.com/propane_msd.htm

1/18/2009

PROPANE MSDS

Ingestion:	None.
otoxicity, Inhalation:	None.
Flash Point:	-156F (-10-K)
Autoignition:	84°F (-B2C)
Flammable Limit - Lower:	2.2%
Flammable Limit - Upper:	9.5%
Extinguishing Media:	CO ₂ , dry chemical, water spray or fog from surrounding area. Do not extinguish until propane source is shut un:
Fire Fighting Instructions:	Evacuate all personnel from danger area. Immediately cool container with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosion or re-ignition may occur. Stop flow of gas if without risk while continuing cooling, valve spray.
Fire And Explosion Hazards:	Propane is easily ignited. It is heavier than air, therefore, it may collect in low areas or travel along the ground where an ignition source may be present. Pressure in a container can build up due to heat, and it may rupture if pressure relief devices should fail to function.
Hazardous Combustion Products:	None known.
Static Discharge:	Possible, container should be grounded.
Physical Properties:	None.

06. ACCIDENTAL RELEASE MEASURES

Evacuate:	Evacuate the immediate area. Eliminate all possible sources of ignition, and provide maximum explosion-proof ventilation. Shut off source of propane, if possible. If leaking from cylinder, or valve, contact your supplier. Never enter a confined space or other area when the concentration is greater than 10% of the lower flammable limit which is 0.22%.
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07. HANDLING AND STORAGE

Storage:	Specific requirements are listed in FPA 58. Cylinder storage locations should be well-protected, well-ventilated, dry, and separated from combustible materials. Cylinders should never knowingly be allowed to reach a temperature exceeding 125°F (52°C). Cylinders of propane should be separated from oxygen cylinders or other oxidizers by a minimum distance of 10 ft., or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least 1 hour. Full and empty cylinders should be segregated, using a first-in, first-out inventory system to prevent full containers from being swapped for long periods of time.
Handling:	Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked (1, 2). Protect cylinders from physical damage: do not drag, roll, lift or drop. Use a suitable hand truck for cylinder filling. Post "No Smoking or Open Flames" signs in the storage area. There should be no sources of ignition. All electrical equipment should be explosion proof in the storage and use areas. Storage areas must meet national electrical codes for class I hazardous areas.
	Propane is heavier than air and may collect in low areas that are without proper ventilation. Leak check system with leak detector (solution, or with flame). If user experiences difficulty operating cylinder, discontinue use and contact supplier. Never insert any object (e.g., wrench, screwdriver, pin, bar, etc.) into valve cap openings. Doing so may damage, or cause, causing a leak to occur. Use an adjustable strap, wrench to remove over-light or rusted cap, or non-sparking tools should be used. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Electrically bond and ground cylinder when transferring liquid product. For additional precautions in using propane see Section 16 - Other Information.

08. EXPOSURE CONTROLS - PERSONAL PROTECTION

Engineering Controls:	
Ventilation:	General or mechanical to prevent accumulation in worker's breathing zone above exposure limit. (See Section 2).
Personal Protective Equipment (PPF):	

PROPANE MSDS

Clothing: Com>n Clothin\! is recomm:nded for u e to pre\ -nt static dectric buildup. Sal
Glc,\$ses: tv e,lasses :rt! n:commc:nded ,i,.hcn handling c tinders.
Shoe,: Safr :;hoses arc rcc<.Hnmended ,,,, hc:n handling cylind:rs.
Glmcs: Work glo\ s arc rcommt!ndcd \\\ hc:n handling (.yilندر .
R spirmor: None: n:quired in general use.

Emcrg.enc} l:se: Self-contained breathing. apparatus.-; (SCBA) or positi,-: pressure airline with ma k
arc to be: usc:d in oxyg n-deficient atmosphere. Respirators will not ii.mction.
l:kfore entering i:m:a. you must chf!ck for flammable and ox}gen deficient
atmospherc:s.

09. PHYSICAL AND CHEMICAL PROPERTIES

Ph si al State: Gao;
Color: Colorless
Od•Jr: t.:nodorized propane has a slightb \\\cet odor. If an odorant has hecn a<lded it will
han: a strong unple:asant <.ldor.
lolccular Wdghl: 44.097
Boiling Point: --13.67°F { -42.04°C) 'tf. I atm
Sp dlic Cira\ it : 1.5223 At 70°F (21.1 C) : 't/ I lltm_ Air= 1
Fn:l.:zingi\ldting Point: -305.84F(-187.69C)ut 1 atm
Vapor Pressure: 109.73 psig, (756.56 kPa) at 70,}F (21.:?:°)
Vap\,r Density: O.l JO lb.!cu ft (1.1.77kgiCuM). -\t i0°F (21.1.;C> ij_ 1 arm
\Water Solubility: .065 Vol.:Vol. At 100= F (37.8°C)
fa.pansion Ratio: 1 to .290 at 7ocr <21.1;C>
pH: !'-ot applicabl
Odor Thri.: hold: 1800mg/CuM
l..vaporation Rah:: ?-lot Applicable - Gas
Cocfricicnt Of Water."<)il
Distribution: Information not availabk

10. STABILITY AND REACTIVITY

Ch mical Stability: Stable
Conditions T(1 :\mid: ;\one.
Incompmbilit) \\\ ith Other Materials: Oxidizing agl!nts.
Hazardous lkomposition Products: one.
I lazardous Pol mcri.l.ation: Will not occur

11. TOXICOLOGICAL INFORMATION

01ht:r Studies Rd \Unt Tt, Material: Propane is nonli..rxic anJ is a simple a:::,ph: :\iant. ho\,c:, r it does ha\,c slight
anesthetic properties and higher concentrations ma: ,au (! dizziness.
Irrilam; Of Material: None.
Rt:productive Efti:cts: one.
Teratogenicity: None.
S nergisLic ;\laterials: l':onc.
Sensitization To Mat rial: one.
lutagenicity: one.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: !\o adverse ccological ctlects an: expected. Propan docs not contain *an:* Clas5 I
or Class 11 O:tonc: Jc:pleting chemicals (-10 CM. Part 82). Propan<: i:; not listed a
marine pollutant b} DOT I 9 (FR Pan li 1).

13. DISPOSAL CONSIDERATIONS

Wa:::te LJisposal Method: Do not attempt to dispi)sc offr sidual or unused quantities. Return 91inder to
supplier.
Residual product within process s -stem ma be tium d at a controlled ratf. if a
suitabk burning unit (tlare stack) is a\ ailahk ("n :;it. This shall *he* done in
&:cordance: \\\ith ted ral, state. and local regulations.

14. TRANSPORT INFORMATION

f) (ff 'l\..10 Shipping Name: Propane
HAZARD CLASS: 1.1 (Flammable gas.)
Identification Number: UN 1978•
PIN: 1978
Product RQ: None.
Shipping Label: Flammable Gas.

Picard (When Required):	Flammable gas.
Special Shipping Information:	Cylinders should be transported in a secure place, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious hazards and should be discouraged.
Special Shipping Information	* For domestic transportation only: The identification number UN 1075 may be used in place of the identification number UN 1978. The identification number used must be consistent on package markings, shipping papers, and emergency response information (Special provision 19 from 49 CFR 172.101).

TQ or THE FACT

WON. O YOU LIKE MORE INFORMATION OR LEAVE A MESSAGE

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **QUIK-GEL®**

Revision Date: 03-Jan-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-GEU,

Synonyms: None

Chemical Family: Mineral

Application: Viscosifier

Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-IWA	OSHA PEL-TWA
Bentonite	1302-78-9	160-100%	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	11 -5% 1	0.025 mg/m ³	10 ma/m ³ %SiO ₂ +2
Crystalline silica, cristobalite	14464-46-1	0-1%	0.025 mg/m ³	1/2 x 10 mg/m ³ %SiO ₂ +2
Crystalline silica, tridymite	15468-32-3	0-1%	0.05 mg/m ³	1/2 x 1.0 mg/m ³ %SiO ₂ +2

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

- HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD

May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

k- FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Treat symptomatically.

15 FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (f):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower(%):	Not Determined
Flammability Limits in Air - Upper(%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 0, Flammability 0, Reactivity 0
HMIS Ratings: Health 0*, Flammability 0, Physical Hazard 0 . PPE: E

- ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Procedure for Cleaning / Absorption

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

- HANDLING AND STORAGE

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent 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. Keep from excessive heat. Do not reuse empty container.

- EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

Hand Protection

Normal 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.

19. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Various
Odor:	Mild earthy
pH:	8-10
Specific Gravity@20 C (Water=1):	2.6
Density@20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft ³):	47.6-72.1
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Slightly soluble
Solubility in Solvents (g/100ml):	Not Determined
VOES (lbs./gallon):	Not Determined
Viscosity, Dynamic@20 C (centipoise):	Not Determined
Viscosity, Kinematic@20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined

- PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight (g/mole):

Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

H1. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact. inhalation.
Inhalation	<p>Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).</p> <p>Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects {See "ChronicEffects/Carcinogenicity" subsection below}.</p>
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause 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 quartz 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) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68. Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information

For further information consult "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 determined
Carcinogenicity	Refer to <u>IARC Monograph 68. Silica, Some Silicates and Organic Fibres</u> (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

112. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Oegradability	Not determined
Bio•accumulation	Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: 10000 ppm (Oncorhynchus mykiss)
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Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

113. **DISPOSAL CONSIDERATIONS**

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

114. **TRANSPORT INFORMATION**

Land Transportation

DOT
Not restricted

Canadian TOG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

115. **REGULATORY INFORMATION**

US Regulations	Classification
US TSCA Inventory	California Proposition 65

EPA SARA Title III Extremely Hazardous Substances

EPA SARA (311,312) Hazard Class

EPA SARA (313) Chemicals

EPA CERCLA/Superfund Reportable Spill Quantity

EPA RCRA Hazardous Waste

All components listed on
inventory.

Not applicable

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This product does not contain
a toxic chemical for routine
annual "Toxic Chemical
Release Reporting" under
Section 313 (40 CFR 372).

Not applicable.

If product becomes a waste, it
does NOT meet the criteria of a
hazardous waste as
defined by the US EPA.

The California Proposition 65
regulations apply to this
product.

QUIK-GEL®

MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.
Canadian Regulations	
Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	02A Very Toxic Materials Crystalline silica

116. **OTHER INFORMATION**

The following sections have been revised since the last issue of this **MSDS**
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

_ENO OF MSDS

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Ulti-Plex® Grease EP

Product Use: Grease

Product Number(s): CPS250185, CPS250186

Synonyms Chevron Ulti-Plex® Grease EP NLGI 1, Chevron Ulti-Plex® Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email : lubemsds@Chevron.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	(Mixture	SO - 90 %weight
Zinc dialkyldithiophosphate	! sss49-42-3	1 - 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove

Material Safety Data Sheet

the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 274 °C (525 °F) (Typical)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as a priority or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

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

Material Safety Data Sheet

substances in the workplace 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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TLWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m ³	1110 mg/m ³	-	-
Highly refined mineral oil (C15 - C50)	OSHA-HAZ-1	5 mg/m ³	-	-	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Purple

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)

Vapor Density (Air= 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbon solvents; insoluble in water.

Melting Point: 233°C (451.4°F) (Min)

Viscosity: No data available

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or

Material Safety Data Sheet

product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NT) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

- EPCRA 311/312 CATEGORIES:**
1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313
01-2 A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia)= DSL (Canada), EINECS (European Union), ENCS (Japan). IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 15

Revision Date: July 14, 2006

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
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

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.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Ultra-Duty Grease EP

Product Use: Grease

Product Number(s): CPS238011. CPS238012. CPS238013

Synonyms: Chevron Ultra-Duty Grease EP NLGI 0, Chevron Ultra-Duty Grease EP NLGI 1, Chevron Ultra-Duty Grease EP NLGI 2

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States Of America
WWW.chevronlubricants.com

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

Health Emergency

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

Product Information

email: lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS		
COMPONENTS	CAS NUMBER	AMOUNT
Zinc dialkyldithiophosphate	68649-42-3	111 - 5 %wt/wt

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Material Safety Data Sheet

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum Jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: 274 °C (525 °F) (Min)

Autoignition: No Data Available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

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 and accumulating an 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', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Material Safety Data Sheet

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:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted. physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TLV	REL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5mg/m ³	10mg/m ³		--
Highly refined mineral oil (C15 - C50)	OSHA	15 mg/m ³	--		-

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red

Physical State: Semi-solid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)

Vapor Density (Air = 1): >1

Boiling Point: >260°C (500°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Melting Point: 165°C (329°F) (Min)

Density: @ 15°C (59°F)

Viscosity: No data available

Evaporation Rate: No Data Available

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.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 6.7/110.

Skin Irritation: For a 24-hour exposure, the Primary Irritation Score (PIS) in rabbits is: 0.6/8.0.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: LD50: >2g/kg (rat).

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Material Safety Data Sheet

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NT) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

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

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

11

- EPCRA 311/312 CATEGORIES:** 1. Immediate (Acute) Health Effects: NO
 2. Delayed (Chronic) Health Effects: NO
 3. Fire Hazard: NO
 4. Sudden Release of Pressure Hazard: NO
 5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313
01-2 A=IARC Group 2A	04=CA Proposition 65
01-2 B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

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

Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:SA-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

(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) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:

Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 2

Revision Date: June 28, 2006

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
	ICAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA- National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NIH - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (2400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.	

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.

Alfl: ,O WD-40 Company

Material Safety Data Sheet



1 - Chemical Product and Company Identification

Manufacturer: WD-40 Company	Chemical Name: Organic Mixture
Address: 1061 Cudahy Place (92110) P.O. Box 80607 San Diego, California, USA 92138 607	Trade Name: WD-40 Bulk Liquid
Telephone: 1-800-448-9340	Product Use: Cleaner, Lubricant, Penetrant
Emergency only: 1-888-324-7596 (PROZAR)	MSDS Date Of Preparation: 5/16/07
Information: 1-888-324-7596	

2 - Hazards Identification

Emergency Overview:

DANGER! Harmful or fatal if swallowed. Combustible Liquid. Avoid eye contact. Use with adequate ventilation. Keep away from heat, sparks and all other sources of ignition.

Symptoms of Overexposure:

Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.

Eye Contact: Contact may be mildly irritating to eyes. May cause redness and tearing.

Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis.

Chronic Effects: None expected.

Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Suspected Cancer Agent:

Yes No X

3 - Composition/Information on Ingredients

Ingredient	CAS#	Weight Percent
Aliphatic Hydrocarbon	64742-47-8	45-50
	64742-48-9	
	64742-88-7	
Petroleum Base Oil	64742-65-0	30-35
LVP Aliphatic Hydrocarbon	64742-47-8	12-18
Non-Hazardous Ingredients	Mixture	<10

See Section 8 for Exposure Limits

4 - First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

Eye Contact: Flush thoroughly with water. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.

Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

5- Fire Fighting Measures

Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

Special Fire Fighting Procedures: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water.

Unusual Fire and Explosion Hazards: Combustible liquid and vapor. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

6 - Accidental Release Measures

Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 - Handling and Storage

Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use with adequate ventilation. Keep away from heat, sparks, hot surfaces and open flames. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children.

Storage: Store in a cool, well-ventilated area, away from incompatible materials. NFPA 30 Class II Liquid.

8 - Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	100 ppm TWA (ACGIH) 1200 mg/m ³ TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m ³ TWA (OSHA/ACGIH)
LVP Aliphatic Hydrocarbon	1200 mg/m ³ TWA (manufacturer recommended)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product

Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Safety glasses or goggles recommended.

Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z89.2 and good Industrial Hygiene practice.

Work/Hygiene Practices: Wash with soap and water after handling.

9 - Physical and Chemical Properties

Boiling Point: 323°F minimum Specific Gravity: 0.817 72°F

Solubility in Water:	Insoluble	oH:	Not Aoolicable
Vapor Pressure:	1.8 mmHg @ 68°F (aliphatic hvdrocarbon)	Vapor Density:	Greater than 1
Percent Volatile:	74%	VOE:	412 grams/liter {49.5%}
Coefficient of Water/Oil Distribution:	Not Determined	Appearance/Odor	Light amber liquid/mild odor
Flash Point	! 131°F (concentrate) Tag ! Closed Cup	Flammable Limits: (Solvent Portion)	LEL: 1.1% UE:: 8.9%

10 - Stability and Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition.

Incompatibilities: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 - Toxicological Information

The oral toxicity of this product is estimated to be greater than 5,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

None of the components of this product is listed as a carcinogen or suspected carcinogen or is considered a reproductive hazard.

12- Ecological Information

No data is currently available.

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (0001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Dispose in accordance with federal, state, and local regulations.

14-Transportation Information

DOT Surface Shipping Description: Excepted from Hazmat (49CFR 173.150 (F)) in non-bulk packagings. Bulk Packagings: Combustible Liquid, n.o.s. (contains Petroleum Distillates),

NA1993, PG III

IMDG Shipping Description: UN1268. Petroleum Distillates. n.o.s. 3, PG III

15 - Regulatory Information

U.S. Federal Regulations:

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Acute Health, Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA

Title III Section 313 Reporting requirements: None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory

Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

Canadian **WHMIS** Classification: Class B-3 (Combustible Liquid)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16- Other Information:

HMIS Hazard Rating:

Health - 1 (slight hazard), Fire Hazard - 2 (moderate hazard), Reactivity - 0 (minimal hazard)

SIGNATURE: _____

TITLE: Director of Global Quality Assurance

REVISION DATE May 2007

SUPERSEDES: February 2004

SAFETY DATA SHEET

Product Trade Name: QUIK MUD® D-50

Revision Date: 05-Dec-2016

Revision Number: 11

1. Identification

1.1. Product Identifier

Product Trade Name:	QUIK MUD® 0-50
Synonyms	None
Chemical Family:	Anionic Polymer
Internal ID Code	HM006467

1.2 Recommended use and restrictions on use

Application:	Flocculent Polymer Suspension
Uses advised against	No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251

Halliburton Energy Services
645 - 7th Ave SW Suite 1800
Calgary, AB
T2P4G8
Canada

Prepared By	Chemical Stewardship
	Telephone: 1-281-871-6107
	e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number:	1-866-519-4752 or 1-760-476-3962
	Global Incident Response Access Code: 334305
	Contract Number: 14012

- Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

As adopted by the competent authority, this product does not require an SOS or hazard warning label.

Not classified

2.2. Label Elements

Hazard Pictograms

Signal Word: Not Classified

Hazard Statements Not Hazardous

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

2.3 Hazards not otherwise classified

None known

13. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Modified alkane	Proprietary	10-30%	sp. Tox. 1 (H304) Aauatic Acute 2 (H401)
Ethoxylated alcohol	Proprietary	1-5%	cute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) quatic Acute 1 (H400) Quatic Chronic 3 (H412)

The exact percentage (concentration) of the composition has been withheld as proprietary.

@. First-Aid Measures

4.1. Description of first aid measures

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

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

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

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed

No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

!S. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2 Specific hazards arising from the substance or mixture

Special exposure hazards in a fire

Spills produce extremely slippery surfaces.

5.3 Special protective equipment and precautions for fire..fighters**Special protective equipment for firefighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

- Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment. Spills of this product are very slippery.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

. Handling and storage**7.1. Precautions for safe handling****Handling Precautions**

Avoid contact with eyes, skin, or clothing. Material is slippery underfoot.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities**Storage Information**

Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Keep from freezing. Store at temperatures between 40 and 90 F (5 and 35 C). Product has a shelf life of 12 months.

18. Exposure Controls/Personal Protection**8.1 Occupational Exposure Limits**

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Modified alkane	Proprietary	Sm m ³	5 mg/m ³
Etho lated alcohol	Proprietary	Nota licable	Not applicable

8.2 Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

8.3 Individual protection measures, such as personal protective equipment

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 If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, **AS/NZS** 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Not normally necessary.

Hand Protection Impervious rubber gloves.

Skin Protection Normal work coveralls. Rubber apron.

Eye Protection
Other PrecautionsWear safety glasses or goggles to protect against exposure.
None known.

11. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid	Color	Milky white
Odor: Paraffinic Hydrocarbon	Odor	No information available
	Threshold:	

<u>Property</u>	<u>Values</u>
<u>Remarks/ - Method</u>	
pH:	6-8 (0.5%)
Freezing Point / Range	-15 °C / 5 °F
Melting Point/ Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	0.002 mmHg @ 20°C
Vapor Density	No data available
Specific Gravity	1.08 - 1.12
Water Solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOE Content (%)	No data available
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110. Stability and Reactivity**10.1. Reactivity**

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide. Oxides of nitrogen.

11.1 Information on likely routes of exposure**Principle Route of Exposure** Eye or skin contact, inhalation.**11.2 Symptoms related to the physical, chemical and toxicological characteristics****Acute Toxicity**

Inhalation May cause mild respiratory irritation.

Eye Contact In vitro tests indicate that the product is not an eye irritant.

Skin Contact Prolonged or repeated contact may cause skin irritation.

Ingestion Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

11.3 Toxicity data**Toxicology data for components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Modified alkane	Proprietary	>5000 mg/kg (rat, similar substance)	>4300 mg/kg (rabbit, similar substance)	4.1 mg/L (rat, 4h, aerosol, similar substance)
Ethoxylated alcohol	Proprietary	1700 mg/kg (Rat) 1650 mg/kg (Dog) 1100 mg/kg (Rat) (similar substance) 2850 mg/kg (Rat)	> 2000 mg/kg (Rabbit) (similar substance)	> saturated concentration (similar substance)

Substances	CAS Number	Skin corrosion/irritation
Modified alkane		Causes moderate skin irritation. (similar substances)
Ethoxylated alcohol		Causes moderate skin irritation. (Rabbit) (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Modified alkane		Non-irritating to rabbit's eye (similar substances)
Ethoxylated alcohol		Causes severe eye irritation which may damage tissue. (Rabbit) (similar substances)

Substances	CAS Number	Skin Sensitization
Modified alkane		Did not cause sensitization on laboratory animals (similar substances)
Ethoxylated alcohol		Did not cause sensitization on laboratory animals (guinea pig) (similar substances)

Substances	CAS Number	Respiratory Sensitization
Modified alkane		No information available
Ethoxylated alcohol		No information available

Substances	CAS Number	Mutagenic Effects
Modified alkane		No data of sufficient quality are available.
Ethoxylated alcohol		In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Modified alkane		Did not show carcinogenic effects in animal experiments
Ethoxylated alcohol		Did not show carcinogenic or teratogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Modified alkane		Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Ethoxylated alcohol		Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Modified alkane		No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

		substances)
Ethoxylated alcohol		No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - reDeated exposure
Modified alkane		No data of sufficient quality are available.
Ethoxylated alcohol		No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CASNumber	AsDiration hazard
Modified alkane		May be fatal if swallowed and enters airways
Ethoxylated alcohol		Not applicable

112. Ecological Information

12.1. Toxicity

Substance Ecotoxicity Data

Substances	CASNumber	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Modified alkane	Proprietary	No information available	No information available	No information available	No information available
Ethoxylated alcohol	Proprietary	EC50 (48h) 2-4 mg/L (Selenastrum capricornutum) (similar substance) ErC50 (72h) 0.282 mg/L (Selenastrum capricornutum) (similar substance) ErC10 0.137 mg/L (Scenedesmus subspicatus) (similar substance)	2.6 mg/L (Brachydanio rerio) (similar substance) LC50 (96h) 1.1 mg/L (Salmo gairdneri) (similar substance) NOEC 0.88 mg/L (reproduction) (Lepomis macrochirus) (similar substance)	No information available	EC50 (48h) 1.2 mg/L (Daphnia magna) (Similar substance) EC50 (48h) 0.6 mg/L (Daphnia magna) (Similar substance) NOEC (21d) 0.77 mg/L (reproduction) (Daphnia magna) (Similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Modified alkane	Proprietary	(57.5% @ 28d)
Ethoxylated alcohol	Proprietary	Readily biodegradable (85% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Modified alkane	Proprietary	No information available
Ethoxylated alcohol	Proprietary	5.17

12.4. Mobility in soil

Substances	CAS Number	Mobility
Modified alkane	Proprietary	No Information available
Ethoxylated alcohol	Proprietary	Kd = 3.07 L/kg Kd = 3.09 L/kg

12.5 Other adverse effects

No information available

113. Disposal Considerations

13.1. Waste treatment methods

Disposal methods
Contaminated Packaging

Disposal should be made in accordance with federal, state, and local regulations.
Follow all applicable national or local regulations.

114. Transport Information**US DOT**

UN Number Not restricted
 UN proper shipping name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental Hazards: Not applicable

Canadian TDG

UN Number Not restricted
 UN proper shipping name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
 UN proper shipping name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
 UN proper shipping name: Not restricted
 Transport Hazard Class(es): Not applicable
 Packing Group: Not applicable
 Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

Special Precautions for User None

115. Regulatory Information**US Regulations**

US TSCA Inventory All components listed on inventory or are exempt.

TSCA Significant New Use Rules - S5A2

Substances	CAS Number	TSCA Significant New Use Rules - S5A2
Modified alkane	Proprietary	Not applicable
Ethoxylated alcohol	Proprietary	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Modified alkane	Proprietary	Not applicable
Ethoxylated alcohol	Proprietary	Not applicable

EPA SARA (311.312) Hazard Class

None

EPASARA 313 Chemicals

Substances	CAS Number	toxic Release Inventory (TRI) • Group I	toxic Release Inventory (TRI) • Group II
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Modified alkane
Ethoxylated alcohol

Proprietary	Not applicable	Not applicable
Proprietary	Not applicable	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLARQ
Modified alkane	Proprietary	Not applicable
Ethoxylated alcohol	Proprietary	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 All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law Does not apply.

NJ Right-to-Know Law Does not apply.

PA Right-to-Know Law Does not apply.

NFPA Ratings: Health 1, Flammability 1, Reactivity 0

HMIS Ratings: Health 1, Flammability 1, Physical Hazard 0

Canadian Regulations

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

116. Other information**Preparation Information**

Prepared By Chemical Stewardship
Telephone: 1-281-871-6107
e-mail: fdunexchem@halliburton.com

Revision Date: 05-Dec-2016

Reason for Revision SDS sections updated:
1

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms used in the safety data sheet

bw - body weight
CAS - Chemical Abstracts Service
d-day
ECS0 - Effective Concentration 50%
ErCS0 - Effective Concentration growth rate 50%
h - hour
LC50 - Lethal Concentration 50%
LD50 - Lethal Dose 50%
LL50 - Lethal Loading 50%
mg/kg - milligram/kilogram
mg/L - milligram/liter

mm - millimeter
mmHg - millimeter mercury
NIOSH - National Institute for Occupational Safety and Health
NTP-National Toxicology Program
OEL - Occupational Exposure Limit
PEL - Permissible Exposure Limit
ppm - parts per million
STEL - Short Term Exposure Limit
TWA- Time-Weighted Average
UN - United Nations
w/w - weight/weight

Key literature references and sources for data

www.ChemADVISOR.com/
OSHA
ECHAC&L

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

MSDS Date: March 13, 2006
Emergency Contact: 1-800-424-9300

SECTION I

PRODUCT NAME: Sodium Carbonate
TRADE NAME/SYNONYM: Soda Ash
FORMULA: Na₂CO₃
CHEMICAL FAMILY: Alkali

DOT SHIPPING INFORMATION: Not DOT regulated

SECTION II - HAZARDOUS INGREDIENTS

This material contains no ingredients which are known by Thatcher Company to be hazardous unless it's listed below.

HAZARDOUS MATERIAL	CASNUMBER	w/w%	EXPOSURE LIMITS IN AIR
Sodium Carbonate Particles Not Otherwise Regulated (PNOR) containing no asbestos and < 1% crystalline silica.	497-19-8	-----	PEL = 15 mg/cum (TWA) Total dust TLV = 10mg/cum(TWA) Inhalable PEL = 5 mg/cu m Respirable dust TLV = 3 mg/cu m Respirable

The specific identity of some ingredients may be withheld for confidential business purposes. However, all known potential health effects from exposure to these ingredients are being addressed.

SECTION III - PHYSICAL DATA

BOILING POINT: decomposes

SPECIFIC GRAVITY (820 = 1): 2.509

VAPOR PRESSURE (mm Hg): N/A

% VOLATILE, BY VOLUME: N/A

VAPOR DENSITY (air= 1): N/A

EVAPORATION RATE: N/A

SOLUBILITY IN WATER: 33.2 max

APPEARANCE AND ODOR: White granular solid. Odorless.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Noncombustible

FLAMMABLE LIMITS: Lel: N/A Uel: N/A

EXTINGUISHING MEDIA:
All

SPECIAL FIRE-FIGHTING PROCEDURES:
None

UNUSUAL FIRE AND EXPLOSION HAZARDS:

None



THATCHER COMPANY MATERIAL SAFETY DATA SHEET

PRODUCT: SODIUM CARBONATE

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SECTION V - REACTMITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION:

Will not occur

HAZARDOUS DECOMPOSITION PRODUCTS:

None

SECTION VI - HEALTH HAZARD DATA

NFPA HAZARDOUS RATING: Health= 2 Flammability= 0 Reactivity= 0
Carcinogenic Listing:

NTP: No ingredients listed in this section.

IARC MONOGRAPHS: No ingredients listed in this section.

OSHA 29 CFR 1910: No ingredients listed in this section.

ENTRY ROUTES & EFFECTS OF OVEREXPOSURE:

- Contact:** Repeated contact may cause redness and dry, cracked skin. Dust may cause severe irritation to eyes.
- Inhalation:** Dust may cause slight irritation to the nose and throat.
- Ingestion:** May cause burns of the mouth, throat esophagus and stomach. May cause nausea, vomiting, and diarrhea if large quantities are ingested.

STATEMENT OF PRACTICAL TREATMENT:

- Contact:** Wash exposed area thoroughly with soap and water. For eyes, flush with cool water for at least 15 minutes. Consult a physician if irritation persists.
- Inhalation:** Remove to fresh air. Treat symptomatically.
- Ingestion:** If conscious, give large amounts of water to dilute. **Do not** induce vomiting. Consult a physician.

SECTION VII - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

Avoid contact with eyes and skin. Avoid breathing dust. Use with adequate ventilation. Keep container closed when not in use. Wash thoroughly after handling.

STEPS TO BE TAKEN IF MATERIAL SPILLS OR LEAKS:

Sweep up as much as possible for salvage or disposal. Wash away residue with water.



THATCHER COMPANY MATERIAL SAFETY DATA SHEET

PRODUCT: SODIUM CARBONATE

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WASTE DISPOSAL METHOD:

If material cannot be salvaged, the preferred method of disposal is in a secure chemical landfill in accordance with all local, state and federal environmental regulations. Empty containers may be incinerated or discarded as general trash.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

In dusting conditions, use NIOSH/MSHA approved dust mask (respirator) if concentration exceeds suggested exposure limits.

VENTILATION:

Maintain adequate ventilation. Use local exhaust as needed to maintain airborne exposure below control limits.

EYE PROTECTION:

Chemical safety goggles.

SKIN PROTECTION:

Clothing with long sleeves. Impervious gloves should also be worn.

OTHER PROTECTIVE EQUIPMENT:

A safety shower and eye wash station should be available in work area.

ACGIH = American Conference of Governmental Industrial Hygienists

CL = Ceiling Level

IARC = International Agency for Research on Cancer: Monographs

OSHA = Occupational Safety and Health Administration

NIA = Not Applicable

NTP = National Toxicology Program: Annual Report on Carcinogens

PEL = Permissible Exposure Level (OSHA)

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average over 8 Hours

This information is, to the best of our knowledge, accurate but may not be complete. THATCHER COMPANY furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness, or reliability.



CEMENT & CONCRETE PRODUCTS™

Cements

MATERIAL SAFETY DATA SHEET (Complies with OSHA 29 CFR 1910.1200)

SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30329

Emergency Telephone Number
(770) 216-9580

Information Telephone Number
(770) 216-9580

MSDS K1
Revision: Ju1-12

**QUIKRETE® Product Name****Code#**

QUIKRETE® PORTLAND CEMENT	1124
PORTLAND/POZZOLAN CEMENT	1118-35
QUIKRETE® PORTLAND T-I AND T-11I CEMENT	2126-53
QUIKRETE® PORTLAND T-10 AND T-30 CEMENT	
QUIKRETE® PORTLAND T-III w FLY ASH	1125-22
ALL-STAR PORTLAND CEMENT TYPE-I	1121-94
ZIA PORTLAND CEMENT	2124-97

PRODUCT USE: HYDRAULIC CEMENTS FOR GENERAL CONSTRUCTION AND REPAIR

SECTION II - HAZARD IDENTIFICATION

Route(s) of Entry: Inhalation, Skin, Ingestion

Acute Exposure: Product becomes alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Toxic effects noted in animals include, for acute exposures, alveolar damage with pulmonary edema.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.

Carcinogenicity: Since Portland cement and blended cements are manufactured from raw materials mined from the earth (limestone, marl, sand, shale, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possibly harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain 0.75 % insoluble residue. A fraction of these residues may be free crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.

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CEMENT & CONCRETE PRODUCTS

Carcinogenicity Listings:	NTP:	Known carcinogen
	OSHA:	Not listed as a carcinogen
	IARC Monographs:	Group 1 Carcinogen
	California Proposition 65:	Known carcinogen

NTP: The National Toxicology Program, in its "Ninth Report on Carcinogens" (released May 15, 2000) concluded that "Respirable crystalline silica (RCS), primarily quartz dusts occurring in industrial and occupational settings, is *known to be a human carcinogen*, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust (reviewed in IAC, 1997; Brown *et al.*, 1997; Hind *et al.*, 1997)

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite". The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates." (1997)

Signs and Symptoms of Exposure: Symptoms of excessive exposure to the dust include shortness of breath and reduced pulmonary function. Excessive exposure to skin and eyes especially when mixed with water can cause caustic burns as severe as third degree.

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure. Exposure to crystalline silica or the disease silicosis is associated with increased incidence of scleroderma, Tuberculosis and possibly increased incidence of kidney lesions.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. (May contain trace (<0.05 %) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals)

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure.

SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS No.	PEL (OSHA)	TLV (ACGIH)
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CEMENT & CONCRETE PRODUCTS

		mg/M ³	mg/M ³
Portland Cement	65997-15-1	5	5
May contain:			
Silica Sand, crystalline	14808-60-7	10 %SiO ₂ +2	0.05 (respirable)
Pulverized Limestone	01317-65-3	5	5
Fly Ash	68131-74-8	5	5
Gypsum	10101-41-4	5	5
Lime	01305-62-0	5	5

Although these products contain no intentionally added Silica, they may contain small amounts of silica occurring as natural impurities in the other raw materials.

Other Limits: National Institute for Occupational Safety and Health (NIOSH). Recommended standard maximum permissible concentration=0.05 mg/M (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica.

SECTION IV - First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.

Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalations of large amounts of Portland cement require immediate medical attention.

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flammability: Noncombustible and not explosive.

Auto-ignition Temperature: Not Applicable

Flash Points: Not Applicable

SECTION VI - ACCIDENTAL RELEASE MEASURES

If spilled, use dustless methods (vacuum) and place into covered container for disposal (if not contaminated or wet). Use adequate ventilation to keep exposure to airborne contaminants below the exposure limit.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

**CEMENT & CONCRETE PRODUCTS™**

Do not allow water to contact the product until time of use. DO NOT BREATHE DUST. In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended.

SECTION VIII - EXPOSURE CONTROL MEASURES

Engineering Controls: Local exhaust can be used, if necessary, to control airborne dust levels.

Personal Protection: The use of barrier creams or impervious gloves, boots and clothing to protect the skin from contact is recommended. Following work, workers should shower with soap and water. Precautions must be observed because burns occur with little warning -- little heat is sensed.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

Exposure Limits: Consult local authorities for acceptable exposure limits

SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Gray to gray-brown colored powder. Some products available in white and other colors.

Specific Gravity: 2.6 to 3.15

Boiling Point: >2700°F

Vapor Density: Not Applicable

Solubility in Water: Slight

Melting Point:

Vapor Pressure:

Evaporation Rate:

Odor:

>2700°F

Not Applicable

Not Applicable

Not Applicable

SECTION X - REACTIVITY DATA

Stability: Stable.

Incompatibility (Materials to Avoid): Material when mixed with water will react with Aluminum and other alkali and alkaline earth elements liberating hydrogen gas.

Hazardous Decomposition or By-products: None

Hazardous Polymerization: Will Not Occur.

Condition to Avoid: Keep dry until used to preserve product utility.

SECTION XI - TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Ingestion

Toxicity to Animals:

LOSO: Not Available

LC50: Not Available

Chronic Effects on Humans: Conditions aggravated by exposure include eye disease, skin disorders and Chronic Respiratory conditions.

Special Remarks on Toxicity: Not Available

CEMENT & CONCRETE PRODUCTS™

SECTION XII ECOLOGICAL INFORMATION

Ecotoxicity: Not Available**8005 and COD:** Not Available**Products of Biodegradation:** Not available**Toxicity of the Products of Biodegradation:** Not available**Special Remarks on the Products of Biodegradation:** Not available

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302).

SECTION XIV - TRANSPORT INFORMATION

DOT/UN Shipping Name: Non-regulated**DOT Hazard Class:** Non-regulated**Shipping Name:** Non-regulated

Non-Hazardous under U.S. DOT and TOG Regulations

SECTION XV - OTHER REGULATORY INFORMATION

US OSHA 29CFR 1910.1200: Considered hazardous under this regulation and should be included in the employers hazard communication program

SARA (Title III) Sections 311 & 312: Qualifies as a hazardous substance with delayed health effects

SARA (Title III) Section 313: Not subject to reporting requirements

TSCA (May 1997): All components are on the TSCA inventory list

Federal Hazardous Substances Act: Is a hazardous substance subject to statutes promulgated under the subject act

California Regulation: WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Canadian Environmental Protection Act: Not listed

Canadian WHMIS Classification: Considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A, E- Corrosive Material) and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This product has been classified according to the hazard criteria of the Controlled Products Regulation (CPR). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

SECTION XVI - OTHER INFORMATION

HMIS-111: Health - 0 = No significant health risk
1 = Irritation or minor reversible injury possible

CEMENT & CONCRETE PRODUCTS""

2 = Temporary or minor injury possible

3 = Major injury possible unless prompt action is taken

4 = Life threatening, major or permanent damage possible

Flammability- 0 = Material will not burn

1 = Material must be preheated before ignition will occur

2 = Material must be exposed to high temperatures before ignition

3 = Material capable of ignition under normal temperatures

4 = Flammable gases or very volatile liquids; may ignite spontaneously

Physical Hazard- 0 = Material is normally stable, even under fire conditions

1 = Material normally stable but may become unstable at high temps

2 = Materials that are unstable and may undergo react at room temp

3 = Materials that may form explosive mixtures with water

4 = Materials that are readily capable of explosive water reaction

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations (Canada)
DOT	Department of Transportation
IARC	International Agency for Research
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time-weighted Average
WHMIS	Workplace Hazardous Material Information System

Last Updated: July 25, 2012

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express 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 silica contained in our products. END OF MSDS.

Section 1: IDENTIFICATION**Product Name:** Simple Green® All-Purpose Cleaner**Additional Names:****Manufacturer's Part Number:** **Please refer to Section 16***Recommended Use:** Cleaner & Degreaser for water tolerant surfaces.**Restrictions on Use:** Do not use on non-rinsable surfaces.**Company:** Sunshine Makers, Inc.
15922 Pacific Coast Highway
Huntington Beach, CA 92649 USA**Telephone:** 800-228-0709 • 562-795-6000 *Mon - Fri, 8am - 5pm PST***Fax:** 562-592-3830**Email:** info@simplegreen.com**Emergency Phone:** Chem-Tel 24-Hour Emergency Service: 800-255-3924**Section 2: HAZARDS IDENTIFICATION**

This product is not classified as hazardous under 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200) .

OSHA HCS 2012Label Elements**Signal Word:** None**Hazard Symbol(s)/Pictogram(s):** None required**Hazard Statements:** None**Precautionary Statements:** None**Hazards Not Otherwise Classified (HNOC):** None**Other Information:** None Known**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Ingredient</u>	<u>CAS Number</u>	<u>Percent Range</u>
Water	7732-18-5	> 84.8%*
Ethoxylated Alcohol	68439-46-3	< 5%*
Sodium Citrate	68-04-2	< 5%*
Tetrasodium N,N-bis(carboxymethyl)-L-glutamate	51981-21-6	< 1%*
Sodium Carbonate	497-19-8	< 1%*
Citric Acid	77-92-9	< 1%*
Isothiazolinone mixture	55965-84-9	< 0.2%*
Fragrance	Proprietary Mixture	< 1%*
Colorant	Proprietary Mixture	< 1%*

specific percentages of composition are being withheld as a trade secret*Section 4: FIRST-AID MEASURES****Inhalation:** Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air.**Skin Contact:** Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.**Eye Contact:** Not expected to cause eye irritation. If adverse effect occurs, flush eyes with water.**Ingestion:** May cause upset stomach. Drink plenty of water to dilute. See section 11.**Most Important Symptoms/Effects, Acute and Delayed:** None known.**Indication of Immediate Medical Attention and Special Treatment Needed, if necessary:** Treat symptomatically

Section 5: FIRE-FIGHTING MEASURES

Suitable & Unsuitable Extinguishing Media : Use Dry chemical, CO₂, water spray or "alcohol" foam. Avoid high volume jet water.

Specific Hazards Arising from Chemical: In event of fire, fire created carbon oxides may be formed.

Special Protective Actions for Fire-Fighters: Wear positive pressure self-contained breathing apparatus; Wear full protective clothing.

This product is non-flammable. See Section 9 for Physical Properties.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: *For non-emergency and emergency personnel:* See section 8 - personal protection. Avoid eye contact. Safety goggles suggested.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Precautions for Safe Handling: Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

Conditions for Safe Storage including Incompatibilities : Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values: No components listed with TWA or STEL values under OSHA or ACGIH.

Appropriate Engineering Controls: Showers, eyewash stations, ventilation systems

Individual Protection Measures/ Personal Protective Equipment (PPE)

Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely.

Respiratory : Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.

Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive.

General Hygiene Considerations : Wash thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Green Liquid	Partition Coefficient: n-octanol/ water:	Not determined
Odor:	Added sassafras odor	Autoignition Temperature:	Non-flammable
Odor Threshold:	Not determined	Decomposition Temperature:	109°F
pH ASTM D-1293:	8.5-9.5	Viscosity:	Like water
Freezing Point ASTM D-1177:	0-3.33° (32-38°F)	Specific Gravity ASTM D-891:	1.01- 1.03
Boiling Point & Range ASTM D-1120:	101° (213.8°F)	VOCs:	**Water & fragrance exemption in calculation
Flash Point ASTM D-93:	> 212°F	SCAQMD 304-91/ EPA 24:	0 g/L 0 lb/ gal 0%
Evaporation Rate ASTM D-1901:	½ Butyl Acetate @ 25°C	CARB Method 310**:	2.5 g/L 0.021 lb/ gal 0.25%
Flammability (solid, gas):	Not applicable	SCAQMD Method 313:	Not tested
Upper/Lower Flammability or Explosive Limits:	Not applicable	VOE Composite Partial Pressure:	Not determined
Vapor Pressure ASTM D-323:	0.60 PSI @77°F, 2.05 PSI @100°F	Relative Density ASTM D-4017:	8.34 - 8.42 lb/ gal
Vapor Density:	Not determined	Solubility :	100% in water

Section 10: STABILITY AND REACTIVITY

Reactivity:	Non-reactive.
Chemical Stability:	Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Excessive heat or cold.
Incompatible Materials:	Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.
Hazardous Decomposition Products:	Normal products of combustion - CO, CO ₂ .

Section 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation -	Overexposure may cause headache.
	Skin Contact -	Not expected to cause irritation, repeated contact may cause dry skin.
	Eye Contact -	Not expected to cause irritation.
	Ingestion -	May cause upset stomach.

Symptoms related to the physical, chemical and toxicological characteristics: no symptoms expected under typical use conditions.
Delayed and immediate effects and or chronic effects from short term exposure: no symptoms expected under typical use conditions.
Delayed and immediate effects and or chronic effects from long term exposure: headache, dry skin, or skin irritation may occur.
Interactive effects: Not known.

Numerical Measures of Toxicity

Acute Toxicity:	Oral LD ₅₀ (rat)	> 5 g/kg body weight
	Dermal LD ₅₀ (rabbit)	> 5 g/kg body weight

Calculated via OSHA HCS2012 / Globally Harmonized System of Classification and Labelling of Chemicals

Skin Corrosion/Irritation:	Non-irritant per Dermal Irritation [®] assay modeling. No animal testing performed.
Eye Damage/ Irritation :	Minimal irritant per Ocular Irritation [®] assay modeling. No animal testing performed.
Germ Cell Mutagenicity:	Mixture does not classify under this category.
Carcinogenicity:	Mixture does not classify under this category.
Reproductive Toxicity:	Mixture does not classify under this category.
STOT-Single Exposure:	Mixture does not classify under this category.
STOT-Repeated Exposure:	Mixture does not classify under this category.
Aspiration Hazard:	Mixture does not classify under this category.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity:	Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
Aquatic:	Aquatic Toxicity - Low, based on OECD 201, 202, 203 + Microtox: EC ₅₀ & IC ₅₀ > 100 mg/ L. Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
Terrestrial:	Not tested on finished formulation.
Persistence and Degradability :	Readily Biodegradable per OECD 3010, Closed Bottle Test
Bioaccumulative Potential:	No data available.
Mobility in Soil:	No data available.
Other Adverse Effects:	No data available.

Section 13: DISPOSAL CONSIDERATIONS

Unused or Used Liquid: May be considered hazardous in your area depending on usage and tonnage of disposal - check with local, regional, and or national regulations for appropriate methods of disposal.

Empty Containers: May be offered for recycling.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.N. Number:	Not applicable	U.N. Proper Shipping Name:	Cleani ng Compound, Liquid NOi
Transport Hazard Class(es):	Not applicable	NMFC Number:	48580-3
Packing Group:	Not applicable	Class:	55
Environmental Hazards:	Marine Pollutant - NO		

Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code): Unknown.

Special precautions which user needs to be aware of/comply with, in connection with transport or conveyance either within or outside their premises: None known.

U.S. {DOT}/ Canadian TOG:	NotRegulated for shipping.	ICAO/ IATA:	Not classified as Hazardous
IMO/IDMG:	Not classifi ed as Hazardou s	ADR/RID:	Not classified as Hazardous

Section 15: REGULATORY INFORMATION

All components are listed on: TSCA and DSL Inv entory .

SARA Title III: Sections 311/ 312 Hazard Categories - Not applicable.
 Sections 313 Superfunds Amendments and Reauthorizatio ns Act of 1986 - Not applic able.
 Sections 302 - Not applicable.

Clean Air Act (CAA): Not applicable

Clean Water Act (CWA): Not applicable

State Right To Know Lists: No ingredi ent s listed

California Proposition 65: No ingredient s list ed

Texas ESL:

Etho xylated Alcohol	68439-46-3	60 µg/m³ long term	600 µg/m³ short term
Sodium Citrate	68-04-2	5 µg/m³ long term	50 µg/m³ short term
Sodium Carbonate	497-19-8	5 µg/m³ long term	50 µg/m³ short term
Citric Acid	77-92-9	10 µg/m³ longterm	100 µg/m³ short term

Section 16: OTHER INFORMATION

<u>Size</u>	<u>UPC</u>	<u>Size</u>	<u>UPC</u>
2 oz. Pump	043318130366	1 Gallon w/ Dilution Bott le	043318000669
2 oz. Pump	043318131035	1 Gallon	043318000799
4 oz. Pump	043318130014	1 Gallon w/ Dilution Bottle	043318001383
16 oz. Trigger	043318130021	1 Gallon w/ Dilution Bottle	043318002021
22 oz. Trigger	043318130229	1 Gallon	043318130052
24 oz. Trigger, 12 per case	043318000034	1 Gallon w/ Dilution Bottle, 112 per case	043318480140
24 oz. Trigger	043318000300	1 Gallon w/ Dilution Bottle, 4 per case	043318480416
24 oz. Trigger	043318130137	1 Gallon w/ Dilution Bottle, 24 per case	043318480492
32 oz. Trigger	043318000652	1 Gallon w/ laundry	043318002052
32 oz. Trigger	043318130335	1 Gallon w/ towel	043318001222
67.6 oz	043318000393	140 oz.	043318001390
67.6 oz.	043318130144	140 oz., 168 per case	043318561405

1 Gallon w/ Dilution Bottle 043318000539
1 Gallon w/ Dilution Bottle 043318000645

140 oz. w/ Dilution Bottle

043318001468

USA items listed only. Not all items listed. USA items may not be valid for international sale.

Section 16: OTHER INFORMATION - continued**NFPA:**

Health - None

Stability - Stable

Flammability - Non-flammable

Special - None

**Acronyms**

NTP National Toxicology Program

IARC

International Agency for Research on Cancer

OSHA Occupational Safety and Health Administration

CPSC

Consumer Product Safety Commission

TSCA Toxic Substances Control Act

DSL

Domestic Substances List

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department.**This SDS has been revised in the following section s:** Revised SDS layout

DISCLAIMER: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

ENFORCE[®]

PRODUCTS

aerial Safety at Sheets
Click below to view each products MSDS..



Tire Mounting Compounds:

TC -74 Premium Tire Paste
TC -70 Industrial Standard Tire Paste
TC -71 Extra Heavy Duty Tire Paste
TC -73 Custom Blend Tire Paste
TC-75 Black Grease Mounting Lubricant

Tire Paints (water-based):

TC-25 Block Tire Paint, 10:1
TC-26 Black Tire Paint, 4:1
TC-27 Block Tire Paint, Ready to Use

Tire Sealants:

TC-41 Fibrouseal, OTR Tire Sealant

Liquid Tire Mounting Lube:

TC-60 Slide, Liquid Tire Lube

Other Tire Products/Cleaners:

TC-85 White Woll Cleaner
TC-65 Rust Penetrant & Bead Buster
TC-80 Silicone Mold Release
TC-05 Vinyl, Leather & Rubber Dressing
TC -90 Shop Hand Soap
TC-105 Degreaser & Concrete Cleaner

Pipe Joint Lubricants

VSL-35 Pipe Lubricant, Veg. Oil Based
VSL-26 Pipe Lubricant, Sub - Aqueous
VSL-45 Pipe Lubricant, Glycerin based

Concrete/Asphalt Release Products

E-46
E-20
E-12



800-975-6677
www.enforceproducts.com



MATERIAL SAFETY DATA SHEET

Manufactured by: *Imperial Western Products*
P.O. Box 1765
Indio, CA 92202
Phone: 760/398-0815 Fax: 760/398-3515

Date 05/20/09

1. Chemical Product

General Product Name: **ENFORCE Tire Mounting Compound TC-70**
Synonyms: Mounting Lubricant

Health 0
Flammability 0
Reactivity 0

Product Description: **Potassium Soap Lubricant**

CAS Number: *N/A*

2. Composition/ Information on ingredients

This product's ingredients are generally recognized as Non- Hazardous non-toxic, & Non-Restricted

3. Hazardous identification

Potential Health Effects:

INHALATION:

Fumes from this product are generally considered non-toxic, but can cause slight irritation to the mouth, esophagus, and lungs. There are no known acute or chronic effects

EYE CONTACT:

Contact of this product upon the eyes can cause irritation of the eyes and eyelids. There are no known acute or chronic effects.

SKIN CONTACT:

Prolonged contact of this product upon the skin can cause irritation. There is also the possibility of defatting the skin due to the removal of the skins natural oils. There are no known acute or chronic effects.

INGESTION:

When concentrated solutions of this product are swallowed, it can cause irritation to the mouth, esophagus, and stomach. There are no known acute or chronic effects.

4. FIRST AID MEASURES

EYES:

Flush eyes with cool water for 30 minutes. Consult a physician if irritation or damage occurs

SKIN:

Flush exposed area with lukewarm water. Consult physician if irritation or damage occurs.

INHALATION:

Fumes from this product are generally considered harmless.

INGESTION:

Do not induce vomiting. Have patient drink large amounts of water or milk and consult a physician immediately.

5. FIRE FIGHTING MEASURES

Flash Point: None

Flammability Limits: None known

EXTINGUISHING MEDIA: WATER, SAND, CO2, DRY FOAM, HALON

SPECIAL FIREFIGHTING PROCEDURES: THIS PRODUCT WILL NOT BURN OR SUPPORT COMBUSTION.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

6. ACCIDENTAL RELEASE MEASURES/SPILL CLEAN UP PROCEDURES

Small spill: Flush area with water to an industrial sewer line

Large spill: Contains spill with dikes of absorbent materials such as clay, sand, or vermiculite. This material is non-hazardous and may be disposed of as non-hazardous refuse.

7. HANDLING AND STORAGE: For maximum results, store in closed containers above 32°F and below 115 °F. Store out of sun and away from direct heat/cold source for prolonged periods of time for maximum usage.

8. EXPOSURE CONTROL/ PERSONAL PROTECTION

RESPIRATORY PROTECTION:

Please use in a ventilated room, No respiratory protection is recommended.

PROTECTIVE CLOTHING:

Gloves are not necessary when handling this product. Simply rinse exposed area with water.

OTHER PROTECTIVE MEASURES:

When handling this or any other chemical product and there is the possibility of splashing it is recommended that proper protection for the eyes be worn. This consists of chemical resistant glasses and/or goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 212F

Volatiles% by Volume: Negligible

Specific Gravity (H₂O=1): 1.02

Solubility in H₂O % by Volume: 100%

-This product is 100% miscible in water.

Evaporation Rate Butyl Acetate: 1.00

Vapor Pressure (mm Hg): *N/A*

Vapor Density (Air=1): *N/A*

Appearance and odor: **Amber Paste with Mild Soap odor**

10. STABILITY AND REACTIVITY

GENERAL:

Under normal conditions hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Heat or direct sunlight. Stratification of product may result if product is subjected to high temperatures. There are no other harmful effects.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

Combustion elements are carbon monoxide, carbon dioxide along with thick smoke

11. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

All hazardous materials must be solidified and disposed of in an EPA approved class one facility. When disposing of chemicals, contact local, state, and federal environmental agencies to fully understand the necessary regulations governing the disposal of chemical wastes.

12. TRANSPORTATION INFORMATION

UNHAZARD CLASS: *N/A*

NMFC 50303

PROPER SHIPPING NAME: *N/A*

IDENTIFICATION NUMBER: *N/A*

SHIPPING CLASSIFICATION: 55

DOT Class: Non Regulated

13. REGULATORY INFORMATION:

OSHA STATUS:

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous noted in sections 2 and 3.

TSCA STATUS

This product is not listed on TSCA

CERCLA (Comprehensive Responsible Compensation and Liability act)

NOT Reportable

SARA TITLE 111 (Superfund Amendments and Reauthorization act):

Section 312 extremely hazardous substances:

None

Section 311/312 Hazard Categories:

Non hazardous

Section 313 Toxic Chemicals

None

RCRA STATUS:

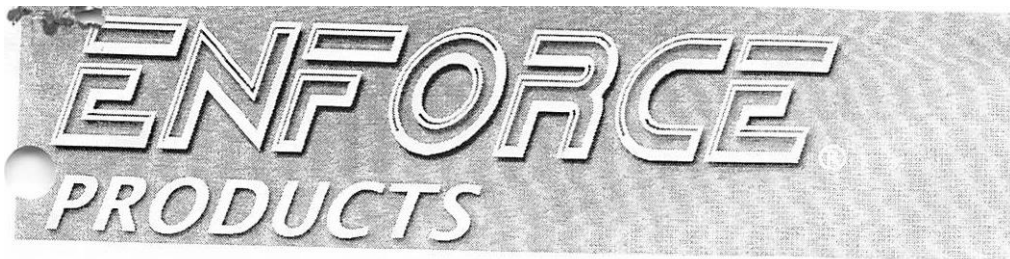
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROP 65

The following statement is made on order to comply with the California Safe Drinking water and Toxic Enforcement Act of 1986. This product contains no chemicals known to the state of California to cause cancer.

14. Other Information

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.



Enforce Safety Data Sheets
Click below to view each product's MSDS..



Tire Mounting Compounds:

TC-74 Premium Tire Paste
TC-70 Industrial Standard Tire Paste
TC - 71 Extra Heavy Duty Tire Paste
TC-73 Custom Blend Tire Paste
TC -75 Black Grease Mounting Lubricant

Tire Paints (water-based):

TC-25 Black Tire Paint, 10:1
TC-26 Black Tire Paint, 4:1
TC-27 Black Tire Paint, Ready to Use

Tire Sealants:

TC-41 Fibrouseal, OTR Tire Sealant

Liquid Tire Mounting Lubricant:

TC-60 Slyde, Liquid Tire Lubricant

Other Tire Products/Cleaners:

TC-85 White Wall Cleaner
TC-65 Rust Penetrant & Bead Buster
TC-80 Silicone Mold Release
TC-05 Vinyl, Leather & Rubber Dressing
TC -90 Shop Hand Soap
TC-105 Degreaser & Concrete Cleaner

Pipe Joint Lubricants

VSL-35 Pipe Lubricant, Veg. Oil Based
VSL- 26 Pipe Lubricant, Sub-Aqueous
VSL-45 Pipe Lubricant, Glycerin based

Concrete / Asphalt Release Products

E-46
E-20
E-12



Made in U.S.A.

800-975-6677

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Division of



MATERIAL SAFETY DATA SHEET

Manufactured by: *Imperial Western Products*
P.O. Box 1765
Indio, CA 92202
Phone: 760/398-0815 Fax: 760/398-3515

Date 05120/09

1. Chemical Product

General Product Name: **ENFORCE Tire Mounting Compound TC-70**
Synonyms: Mounting Lubricant

Health 0
Flammability 0
Reactivity 0

Product Description: **Potassium Soap Lubricant**

CAS Number: *N/A*

2. Composition/ Information on ingredients

This product's ingredients are generally recognized as Non- Hazardous non-toxic, & Non-Restricted

3. Hazardous identification

Potential Health Effects:

INHALATION:

Fumes from this product are generally considered non -toxic, but can cause slight irritation to the mouth, esophagus, and lungs. There are no known acute or chronic effects

EYE CONTACT:

Contact of this product upon the eyes can cause irritation of the eyes and eyelids. There are no known acute or chronic effects.

SKIN CONTACT:

Prolonged contact of this product upon the skin can cause irritation. There is also the possibility of defatting the skin due to the removal of the skins natural oils. There are no known acute or chronic effects.

INGESTION:

When concentrated solutions of this product are swallowed, it can cause irritation to the mouth, esophagus, and stomach. There are no known acute or chronic effects.

4. FIRST AID MEASURES

EYES:

Flush eyes with cool water for 30 minutes. Consult a physician if irritation or damage occurs

SKIN:

Flush exposed area with lukewarm water. Consult physician if irritation or damage occurs.

INHALATION:

Fumes from this product are generally considered harmless.

INGESTION:

Due not induce vomiting. Have patient drink large amounts of water or milk and consult a physician immediately.

5. FIRE FIGHTING MEASURES

Flash Point: None

Flammability Limits: None known

EXTINGUISHING MEDIA: WATER, SAND, CO2, DRY FOAM, HALON

SPECIAL FIREFIGHTING PROCEDURES: THIS PRODUCT WILL NOT BURN OR SUPPORT COMBUSTION.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

6. ACCIDENTAL RELEASE MEASURES/SPILL CLEAN UP PROCEDURES

Small spill: Flush area with water to an industrial sewer line

Large spill: Contains spill with dikes of absorbent materials such as clay, sand, or vermiculite. This material is non-hazardous and may be disposed of as non-hazardous refuse.

7. HANDLING AND STORAGE: For maximum results, store in closed containers above 32°F and below 115 °F. Store out of sun and away from direct heat/cold source for prolonged periods of time for maximum usage.

8. EXPOSURE CONTROL/ PERSONAL PROTECTION

RESPIRATORY PROTECTION:

Please use in a ventilated room, No respiratory protection is recommended.

PROTECTIVE CLOTHING:

Gloves are not necessary when handling this product. Simply rinse exposed area with water.

OTHER PROTECTIVE MEASURES:

When handling this or any other chemical product and there is the possibility of splashing it is recommended that proper protection for the eyes be worn. This consists of chemical resistant glasses and/or goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 212F

Volatiles% by Volume: Negligible

Specific Gravity (H₂O=1): 1.02

Solubility in H₂O % by Volume: 100%

-This product is 100% miscible in water.

Evaporation Rate Butyl Acetate: 1.00

Vapor Pressure (mm Hg): *N/A*

Vapor Density (Air=1): *N/A*

Appearance and odor: **Amber Paste with Mild Soap odor**

10. STABILITY AND REACTIVITY

GENERAL:

Under normal conditions hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Heat or direct sunlight. Stratification of product may result if product is subjected to high temperatures. There are no other harmful effects.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

Combustion elements are carbon monoxide, carbon dioxide along with thick smoke

11. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

All hazardous materials must be solidified and disposed of in an EPA approved class one facility. When disposing of chemicals, contact local, state, and federal environmental agencies to fully understand the necessary regulations governing the disposal of chemical wastes.

12. TRANSPORTATION INFORMATION

UNHAZARD CLASS: *N/A*

NMFC 50303

PROPER SHIPPING NAME: *N/A*

IDENTIFICATION NUMBER: *N/A*

SHIPPING CLASSIFICATION: 55

DOT Class: Non Regulated

13. REGULATORY INFORMATION:

OSHA STATUS:

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous noted in sections 2 and 3.

TSCA STATUS

This product is not listed on TSCA

CERCLA (Comprehensive Responsible Compensation and Liability act)

NOT Reportable

SARA TITLE 111 (Superfund Amendments and Reauthorization act):

Section 312 extremely hazardous substances:

None

Section 311/312 Hazard Categories:

Non hazardous

Section 313 Toxic Chemicals

None

RCRA STATUS:

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.(40 CFR 261.20-24)

CALIFORNIA PROP 65

The following statement is made on order to comply with the California Safe Drinking water and Toxic Enforcement Act of 1986. This product contains no chemicals known to the state of California to cause cancer.

14. Other Information

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.

Appendix B - Drill Equipment

Christensen 140

Surface core drilling rig for exploration drilling

Hole size: B, N, H and P



Meeting the highest standards

Epiroc's Christensen surface core drilling rigs have a well-earned reputation for their reliability, safety and high performance.

Large core samples, a gear-driven rotation unit and a constant penetration rate enable the Christensen 140 to boost your productivity and profits. The durable

Christensen 140 rig is also designed to help you meet tough environmental protection demands anywhere in the world.



⊕ Main benefits

Safety on-site thanks to compliance with the latest EN 16228 safety standards

High productivity through a new two gear rotation unit which allows increased time between overhaul with minimal maintenance

High efficiency thanks to a sturdy mast capable of handling 6 meter core barrels

Safe and highly productive

Christensen 140 has been designed to meet international safety standards and environmental requirements. This rig strikes right at the core of the matter – maximization of your company’s long-term efficiency and profits.



+ Geared-up for the future

The new gear-driven rotation unit requires less maintenance and makes operation easier and more productive. The gearbox and hydraulic chuck further increase productivity while lowering costs associated with maintenance and downtime. The newly designed mast is strong and sturdy, supporting the full weight of the drill string. It handles 6-meter core barrels, allowing you to extract more core per shift.



+ Designed to be safe

Christensen 140 naturally meets the most recent European EN 16228 safety requirements with clever features such as a safety guard with an interlock function that automatically stops the rig when activated. As they work, operators are kept away from moving parts and out of harm's way.



+ Hands-free rod-tripping

Christensen 140 can be equipped with a state-of-the-art rod-handling system that relieves the operator and removes many of the hazardous operations in the drilling process; such as tripping-out rods. Thanks to hands-free rod-tripping the operator assistant is able to handle the assistant control panel instead of manually adding the rods. This means less operator fatigue and fewer injuries.



A comprehensive service offering

Even the best equipment needs to be serviced regularly to make sure it sustains peak performance. An Epiroc service solution offers peace of mind, maximizing availability and performance throughout the lifetime of your equipment. We focus on safety, productivity and reliability.

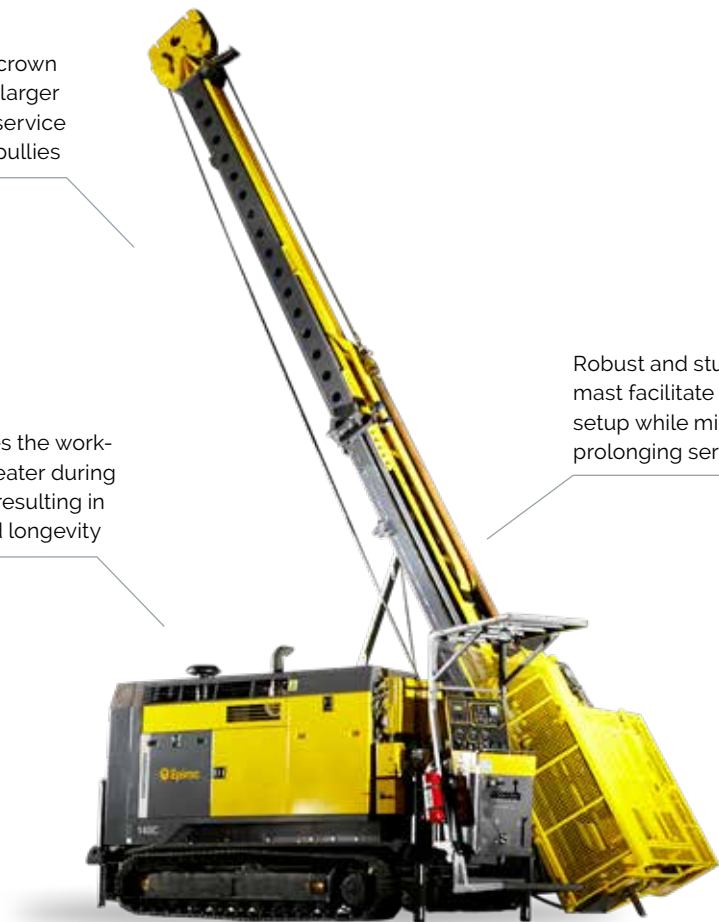
By combining genuine parts and an Epiroc service from our certified technicians, we safeguard your productivity – wherever you are.

Technical specifications

Improved robustness of the crown block with steel shieves and larger wireline pullies extends the service life of both the wire and the pullies

Improved hose routing makes the working environment safer and neater during operation. Wear is reduced, resulting in improved hose reliability and longevity

Robust and sturdy hinges on the mast facilitate easy transport and setup while minimizing wear and prolonging service life



Depth capacity

Standard			Deep hole	
Hole size	Metric	US	Metric	US
B	1 536 m	5 039 ft	1 824 m	5 984 ft
N	1 211 m	3 973 ft	1 381 m	4 531 ft
H	804 m	2 638 ft	1 100 m	3 609 ft
P	491 m	1 611 ft	770 m	2 526 ft

These figures serve as guidelines only. They are calculated with available pull force from main winch, weight of drill string in water filled hole and average WOB. Epiroc cannot guarantee these capacities will be reached in all working conditions due to varying factors such as ITH used, conditions of the ground and differences in operation.

Rotation unit

Power	Hydraulic motor - variable speed/reversible
Final drive	Gear driven
Spindle (inner diameter)	124 mm (4.88 in)
Max torque	7 600 Nm (5 605 ft lb)
Max speed	1 300 rpm
Gear change	Hydraulic shift

Spindle data

Spindle	Ratio	Speed	Torque
Low speed	17.5:1	50–200 rpm	7 600–3 370 Nm (5 605–2 486 ft lb)
High speed	2.7:1	350–1 300 rpm	1 195–530 Nm (881–391 ft lb)

Foldable Mast and feed system

Feed travel	3.5 m (11.5 ft)
Feed speeds	High and Low with variable control
Mast dump travel	1.2 m (3.9 ft)
Thrust	59.6 kN (13 390 lbs)
Pull	138 kN (31 020 lbs)
Drilling angle	45°–90°
Rod pull length	6m (20 ft)

Rod holder

Hydraulic open, gas spring closed - BO to PO rods	
Max diameter	140 mm (5.5 in)
Holding capacity	130 kN (28 660 lbs)

Power unit

Manufacture	Cummins
Model	QSB 6.7 IIIA-3/IV-4F
Volume	6.7 liter, 6 cyl
Power	Stage IIIA/Tier 3: 153 kW (205 hp) / Stage IV/Tier 4F: 160 kW (215 hp)
RPM	1 800
Engine type	Diesel turbocharged and charged air cooled
Cooling system	Water
Electrical system	24V (Alternator 24 V, 70 Amp)
Sound level	108 dB(A)

Chuck assembly

Type	Hydraulic open, spring close
Max clamping diameter	124 mm (4.88 in)
Holding capacity	178 kN (40 000 lbs)

Technical specifications

Main hoist

Single line capacity, bare drum	80 kN (18 000 lbs)
Line speed, bare drum	44 m/min (148 ft/min)
Cable size	29 m (89 ft) x 16 mm (10/16 in)

Wireline hoist

Capacity	2 000 m (6 561 ft) of 4.76 mm (3/16 in)
Line pull	Bare drum: 13 kN (2 922 lb), full drum: 3.7 kN (832 lb)
Line speed:	Bare drum 130 m/min (427 ft/min) Full drum 420 m/min (1 378 ft/min)

Drill base supports

Trailer mounted rig with four wheels (215/75R17.5) and towing package	
Support	4 hydraulic jack legs to adjust rig height
Pad diameter	230 mm at mast and 200 mm at towbar side
Leg adjust range	550 mm
Crawler mounted rig on crawler tracks	
Crawler band width	400 mm (15.7 in)
Crawler ground pressure	9.5/ 65 kPa
Radio control tramming speed (max)	2.1 km/h
Support	4 hydraulic jack legs to adjust rig height
Pad diameter	230 mm at mast and 200 mm at towbar side
Leg adjust range	550 mm

Water pump

Model	Trido 140H
Flow	140 L/min (37 gal/min)
Pressure	68.95 bar (1 000 psi)

Hydraulic system

Primary pump	28 MPa, 240 L/min (4 061 psi, 64 gal/min)
Secondary pump	21.5 MPa–123 L/min (3 118 psi–32.2 gal/min)
Auxiliary pump	20 MPa–77 L/min (2 901 psi–21 gal/min)
Hydraulic oil cooling	Air

Control panel – pilot controlled

Joystick for making & breaking	Make up and drilling torque limitation
Auto thread compensation	Constant penetration rate knob
Rotation Unit Gear indicator	Emergency stop
Penetration rate cm/min and in/min	Water flow and pressure
Feed force and hold back in kN/lbp	LED screen lightning
Engine information display	Electric water flow meter
Wireline counter	Units displayed in imperial or metric

Optional equipment

High altitude kit, to achieve max capacity when drilling above 3 000 m.

Working Dimensions

Dimension	Trailer version		Crawler version	
	Metric	US	Metric	US
A	8 979 mm	354'	8 979 mm	354'
B	12 155 mm	478'	12 155 mm	478'
C	9 429 mm	371'	9 429 mm	371'
D	2 695 mm	106'	2 895 mm	114'

Weight

Trailer	11 000 kg (24 251 lbs)
Crawler	13 000 kg (28 660 lbs)

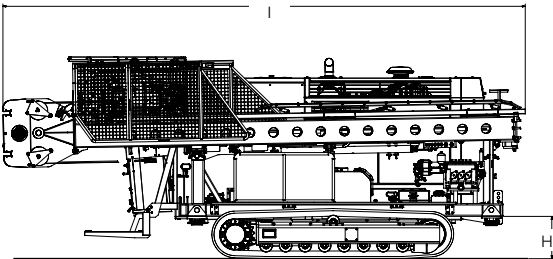
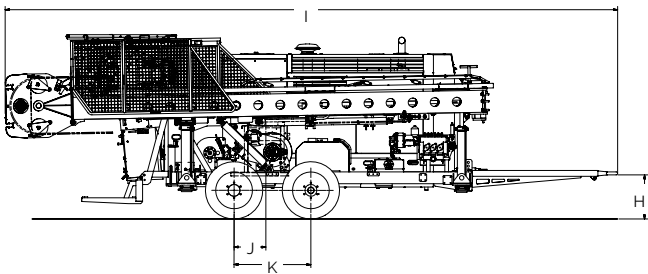
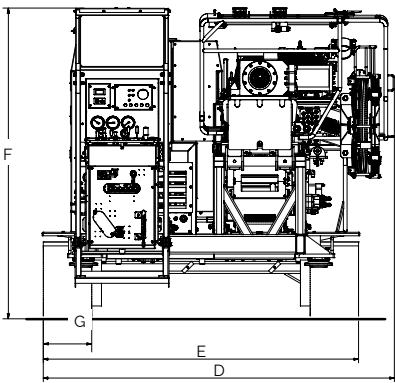
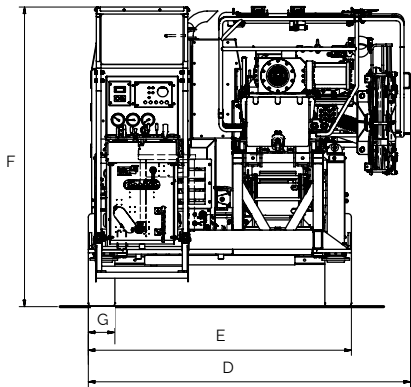
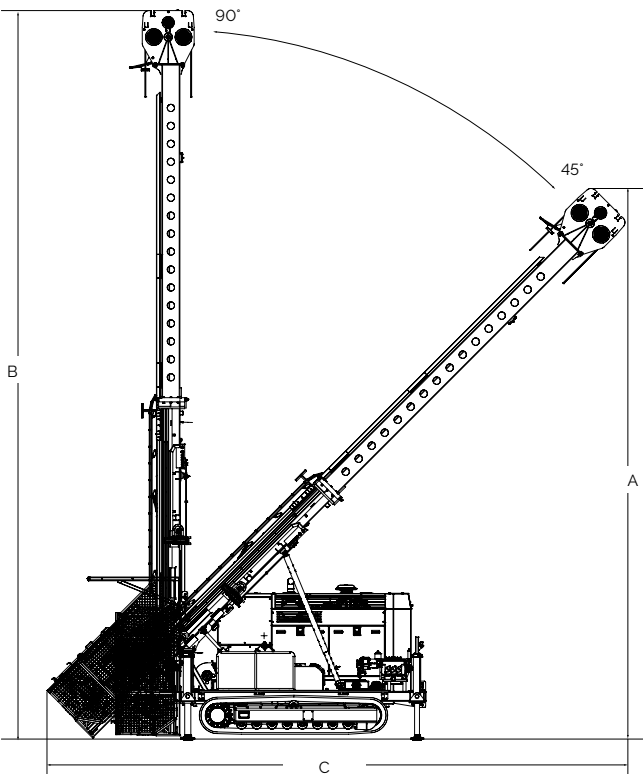
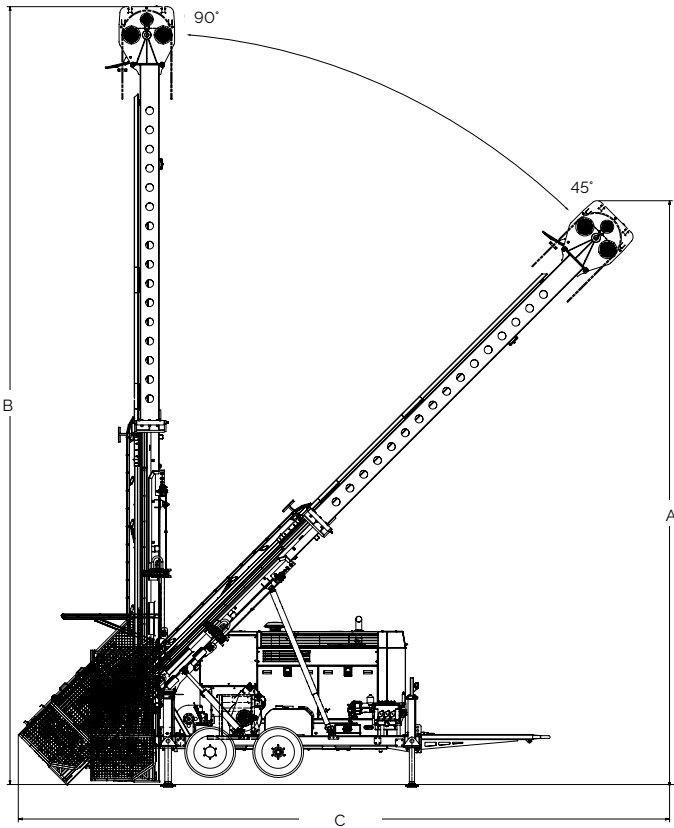
Transport dimensions

Dimension	Trailer version		Crawler version	
	Metric	US	Metric	US
D	2 700 mm	106'	2 895 mm	114'
E	2 290 mm	90'	2 600 mm	102'
F	2 505 mm	99'	2 558 mm	101'
G	215 mm	8.5'	400 mm	15.8'
H	599 mm	24'	536 mm	21'
I	8 327 mm	328'	6 636 mm	261'
J	432 mm	17'	-	-
K	1 044 mm	41'	-	-

Standard equipment

Hydraulic mast dump	Hydraulic PW-size rod holder
Mast in two sections	4 hydraulic levelling jacks
Large crown sheave wheel	Towing package
Ware lines on lower mast	Fuel filter & water separator
Safety guards with inter-lock	Hydraulic mast raise
Hydraulic oil reservoir Electric fill pump	Trido water pump
Hydraulic Mud mixer	Tachometer
Hydraulic oil tank volume (100 liters)	Lighting kit
Diesel tank volume (200 liters)	Crawler tracks (Christensen 140C)
Radio remote control (Christensen 140C)	Wireline winch with level wind, depth indicator and parking brake

Technical specifications



Minimise on-site danger

The Christensen Rod Handler System (RHS) is available as an option for both the Christensen 140 and Christensen CT20 surface core drilling rigs.

Safety is always a top concern and sometimes surface core drilling can be challenging in terms of operator safety. This is why we developed the Rod Handling System. The Christensen RHS enables hands-free rod tripping throughout the drilling cycle, which means there is no need to manually add or remove rods by hand. Secondly, thanks to hands-free rod tripping

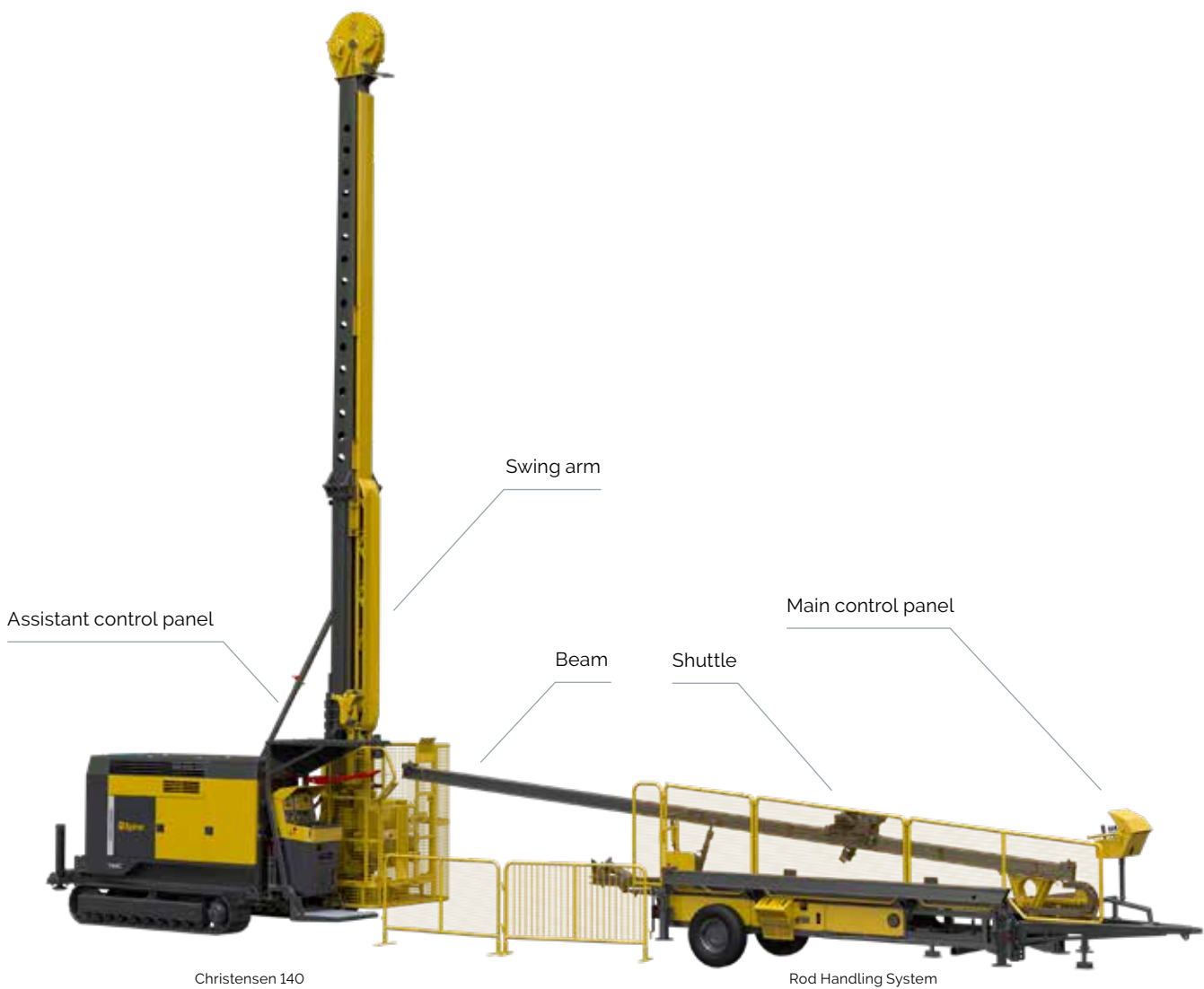
the operator assistant is able to handle the assistant control panel instead of manually adding the rods. This means less fatigue for the operator assistant. Lastly, safety is further improved by reducing the amount of injuries during the rod loading process. This is achieved thanks to not having to manually add rods when threading.

⊕ Main benefits

Hands-free rod tripping throughout the drilling cycle

Less fatigue for the operator assistant

Minimise injuries during the rod-loading process



Technical data

Main application area	Core drilling
Drilling method	Wireline drilling
Rod rack capacity	B - 25 rods, N - 20 rods, H - 15 rods, P - 11 rods
Powered by	Rig auxiliary hydraulic
Transport dimensions	8 250 x 1 700 x 2 150 mm
Weight	2 500 kg

Working dimensions

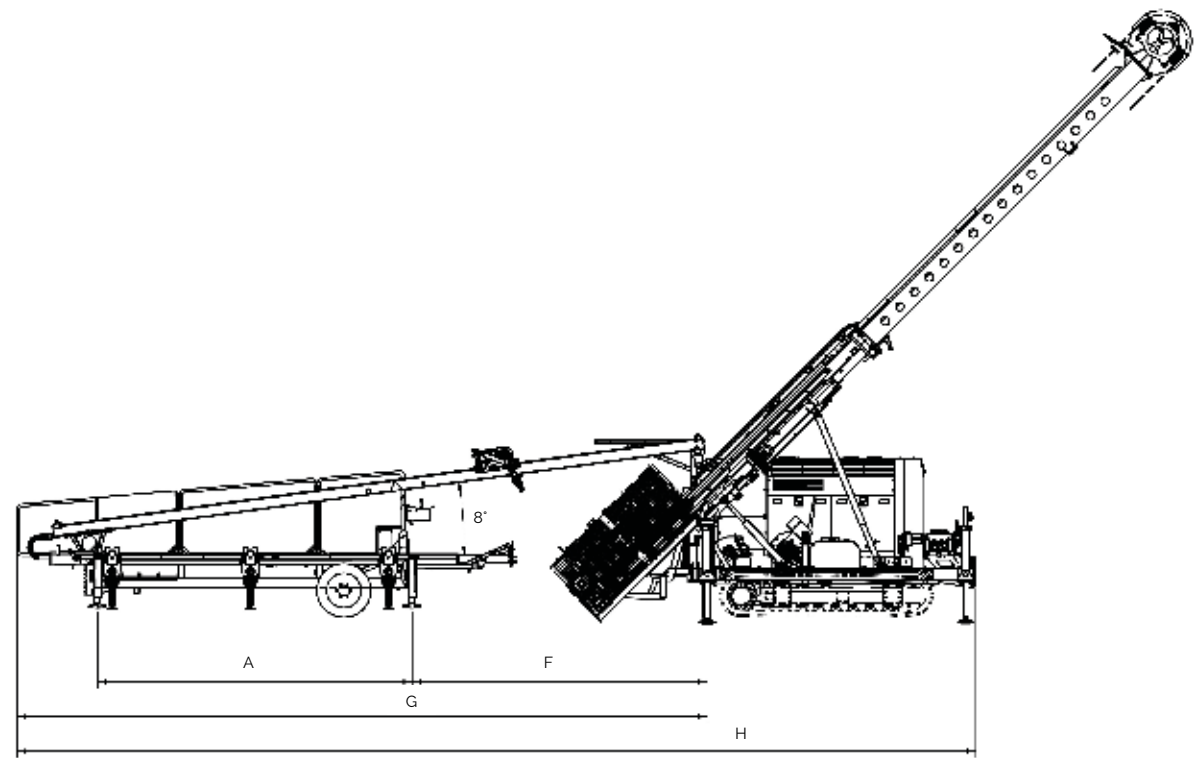
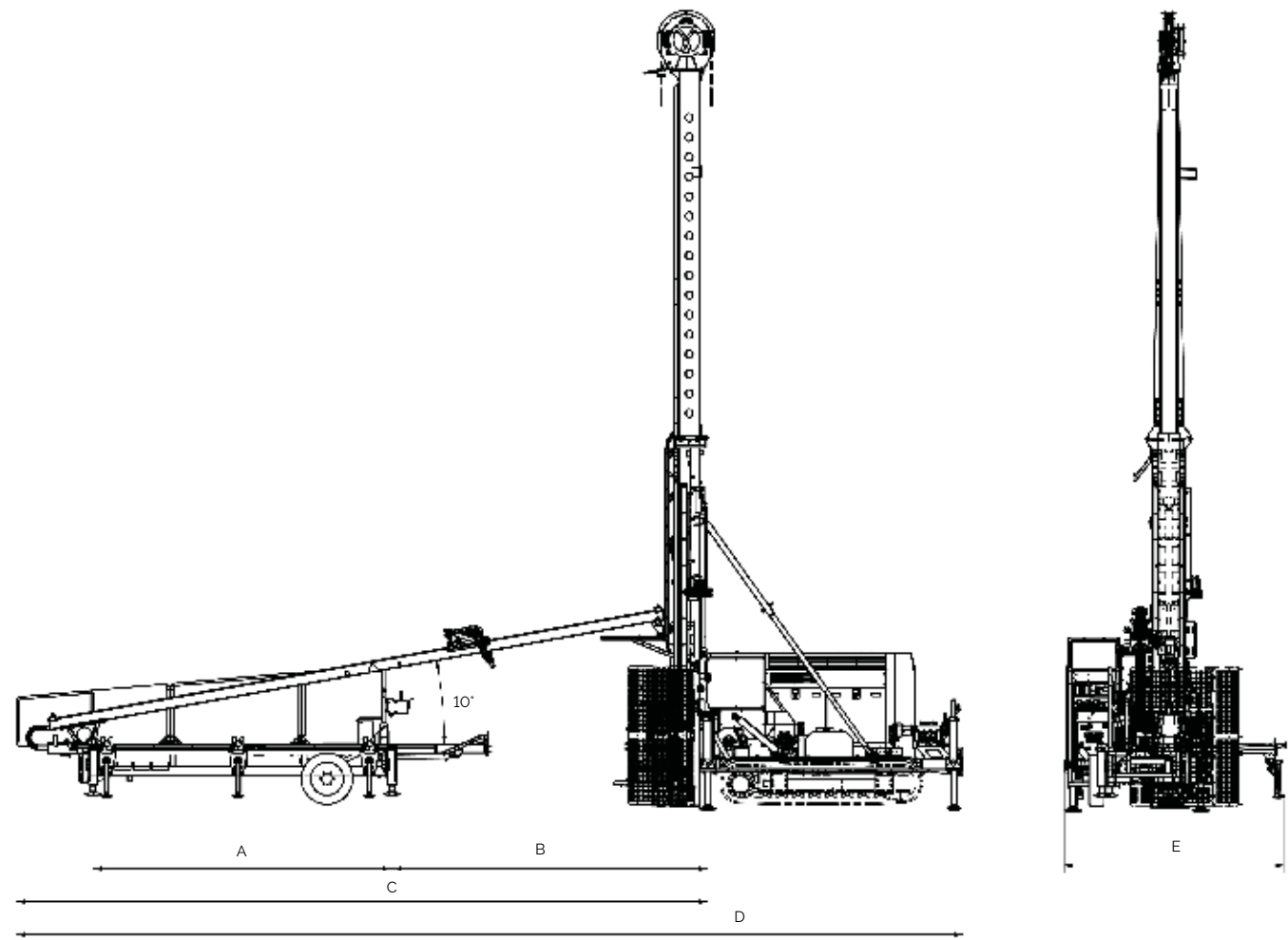
Dimension	Metric	US
A	4 554 mm	14.9 ft
B	4 809 mm	15.8 ft
C	10 530 mm	34.5 ft
D	14 415 mm	47.3 ft
E	3 331 mm	10.9 ft
F	4 270 mm	14.0 ft
G	9 991 mm	32.8 ft
H	13 876 mm	45.5 ft

Technical data

Handles 3 meter and 6 meter drill rod
Rod size - B, N, H and P
Can handle WL casings
Handles the complete core barrel as well as inner tube
Drilling angles from 45° to 90°
CE certified (EN 16228)

Transport dimensions

Dimension	Metric	US
Length	8 250 mm	27.1 ft
Width	2 150 mm	7.1 ft
Height	1 700 mm	5.6 ft



United in performance. Inspired by innovation.

Performance unites us, innovation inspires us, and commitment drives us to keep moving forward. Count on Epiroc to deliver the solutions you need to succeed today and the technology to lead tomorrow.
epiroc.com



APPENDIX C-1 – Silver Point Wasterock Drill Station



1. View of Silver Point drill pad with drill location stake. Ground is flat and surrounded to the west with a hillside of wasterock



2. Closer view of the wasterock pile looking WSW. This will be the borrow area for the berm material



3. Northward view from the middle of the drill pad. As can be seen, no earthwork except for drainage protection berms will be needed



4. South edge of the drill pad with the best development of vegetation likely attributable to shade provided by the mature Limber Pine



5. Additional existing access from a wasterock rock to the NW



6. View of the main drill pad area looking WSW

APPENDIX C-2 – Caribou Wasterock Drill Station



1. Western vein of the Caribou Wasterock Drill Pad showing the best development of fringe vegetation



2. Closer view of the drill pad showing invasive species essentially growing in rock matrix



3. Northward view with the break in slope off the wasterock being about 25 feet from the proposed downgradient berm



4. Westward view showing the sparseness of vegetative cover



5. Typical density of vegetative development in the rocky wasterock



6. One of about 3 Potentilla shrubs on the drill pad area

APPENDIX D – VEGETATION AT THE SILVER POINT WASTE ROCK AREA FOR A DRILL PAD

Plant Species	Relative Percentage
<i>Pinus flexilis</i> (Limber Pine)	>1%
<i>Potentilla nivea</i> (Snow Cinquefoil)	1%
<i>Potentilla diversifolia</i> (Cinquefoil)	3%
<i>Pericularis racemose</i> (Lousewart)	1.5%
<i>Solidago specio-pallida</i> (Snowy Goldenrod)	2%
<i>Plantago major</i> (Broadleaf Plantain)	2%
<i>Penstemon whippleanus</i> (Subalpine Penstemon)	0.2%
<i>Astragulus bisucatus</i> (Two-grooved Milkvetch)	1%
<i>Dactylis glomerata</i> (Orchardgrass)	2-3%
<i>Penstemon alpinus</i> (Alpine Penstemon)	1%
<i>Potentilla rubicaulis</i> (Cinquefoil)	1.5%
<i>Rubus spectabilis</i> (Salmonberry)	1%
<i>Achillea lanulosa</i> (Yarrow)	2%
<i>Erigeron pumilus</i> (Shaggy Fleabane)	1%
<i>Lupinus argenteus</i> (Common Lupine)	2.5%
<i>Penstemon virens</i> (Penstemon)	2%
<i>Androsace chamaejasme</i> (Rock Jasmine-Primrose)	0.2%
<i>Agoseris glauca</i> (False Dandelion)	0.2%
<i>Pentaphylloides floribunda</i> (Shrubby Cinquefoil)	1%
<i>Poa nemoralis</i> (Wood Bluegrass)	4%
<i>Artemisia biennis</i> (Biennial Wormwood)	2%

Note: Relative Percentages are based upon total area for drill pad which is nearly 70% rocky material with no organic fraction

APPENDIX D – VEGETATION AT THE CARIBOU WASTE ROCK AREA FOR A DRILL PAD

Plant Species	Relative Percentage
<i>Achillea lanulosa</i> (Yarrow)	0.5%
<i>Agropyron cristatum</i> (Crested Wheatgrass)	2.5-3%
<i>Potentilla diversifolia</i> (Cinquefoil)	2%
<i>Lupinus argenteus</i> (Common Lupine)	0.5%
<i>Artemisia fridida</i> (Fringed Sage)	1%
<i>Dasiphora fruticose</i> (Shrubby Cinquefoil)	0.5%
<i>Dyssodia papposa</i> (Fetid Marigold)	0.1%
<i>Barbarea orthoceras</i> (American Yellowrocket)	0.5%
<i>Verabascum Thapsus</i> (Mullein)	0.5%
<i>Solidago speciosapallida</i> (Snowy Goldenrod)	1%
<i>Polemonium delicatum</i> (Jacob's Ladder)	0.1%
<i>Erigeron pumilus</i> (Shaggy Fleabane or Low Daisy)	0.5%
<i>Pedicularis racemose</i> (Lousewart)	0.5%
<i>Castilleja miniate</i> (Giant Red Indian Paintbrush)	0.3%
<i>Solidago nana</i> (Alpine Goldenrod)	1%
<i>Arabis holboellii</i> (Holboell's Rockcress)	0.2%

Note: Relative Percentages are based upon total area for drill pad which is nearly 90% rocky material with no organic fraction

Prepared By

Gregory P Miller
PO Box 1468
Socorro, New Mexico 87801

After Recording Return To

Richard Mittasch
4415 Caribou Road
PO Box 3395
Nederland, Colorado 80466

Space Above This Line for Recorder's Use

COLORADO GENERAL WARRANTY DEED

STATE OF COLORADO
BOULDER COUNTY

KNOW ALL MEN BY THESE PRESENTS, That for and in consideration of the sum of TEN DOLLARS (\$10.00) in hand paid to Aardvark Agencies, Inc., a Washington corporation, whose address is 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado (hereinafter known as the "Grantor(s)") hereby grants, conveys, and sells to Grand Island Resources LLC, a Colorado Limited Liability Company, whose address is Grand Island Resources LLC, 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado (hereinafter known as the "Grantee(s)") all the rights and warrants the title, interest, and claim in or to the following described real estate in Exhibit A attached), situated in Boulder County, Colorado to-wit:

Mining Claims as described in Exhibit A

TOGETHER WITH all the rights, members and appurtenances to the Real Estate in anywise appertaining or belonging thereto.

TO HAVE AND TO HOLD, the tract or parcel of land above described together with all and singular the rights, privileges, tenements, appurtenances, and improvements unto the said Grantees, their heirs and assigns forever.

And said Grantors, for said Grantors, their heirs, successors, executors and administrators, covenants with Grantees, and with their heirs and assigns, that Grantors are lawfully seized in fee simple of the said Real Estate; that said Real Estate is free and clear from all Liens and Encumbrances, except as hereinabove set forth, and except for taxes due for the current and subsequent years, and except for any Restrictions pertaining to the Real Estate of record in the Probate Office of said County; and that Grantors will, and their heirs, executors and administrators shall, warrant and defend the same to said Grantees, and their heirs and assigns, forever against the lawful claims of all persons.

IN WITNESS WHEREOF, Grantor has executed and delivered this General Warranty Deed under seal as of the day and year first above written.


Grantor's Signature

Richard Mittasch

Grantor's Name

PO Box 3395

Address

Nederland, CO 80466

City, State & Zip

Grantor's Signature

Grantor's Name

Address

City, State & Zip

STATE OF COLORADO)

COUNTY OF Boulder)

I, the undersigned, a Notary Public in and for said County, in said State, hereby certify that Richard Mittasch whose names are signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, they, executed the same voluntarily on the day the same bears date.

Given under my hand this 4th day of May, 2021.


Notary Public

CHELSEY LAFORGE
NOTARY PUBLIC
STATE OF COLORADO

NOTARY ID 20144010719
My Commission Expires March 7, 2022

My Commission Expires: March 7, 2022

Parcel A

EXHIBIT A

The following property located in Sections 5, 7, 8 and 9, Township 1 South, Range 73 West of the 6th P.M., in the Grand Island Mining District, County of Boulder, State of Colorado, to Wit:

The East 500 Feet of the Arizona Lode Claim (United States Mineral Survey No. 54), as set forth in Patent recorded November 25, 1878 in Book 57 at Page 123, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Barablas Lode Claim (United States Mineral Survey No. 15588), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 380278, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Brazilian Lode and Brazilian Millsite Claims (United States Mineral Survey Nos. 13367A and 13367B), as set forth in Patent recorded January 28, 1911 in Book 339 at Page 75, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

(Continued to Following Pages)

The Candia, Northpark, California and Toledo Lode Claims (United States Mineral Survey No. 20483), as set forth in Patent recorded March 11, 1938 in Book 651 at Page 305, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Caribou Lode Claim (United States Mineral Survey No. 37), as set forth in Patent recorded October 9, 1872 in Book V at Page 122, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Carry Lode Claim (United States Mineral Survey No. 660), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 380277, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Columbia Lode Claim (United States Mineral Survey No. 167), as set forth in Patent recorded October 27, 1883 in Book 79 at Page 41, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Douglas Lode Claim (United States Mineral Survey No. 47), as set forth in Patent recorded April 24, 1887 in Book 31 at Page 241, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Extension Lode Claim (United States Mineral Survey No. 92), as set forth in Patent recorded October 17, 1887 in Book 38 at Page 564, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Federal Lode Claim (United States Mineral Survey No. 91), as set forth in Patent recorded September 7, 1874 in Book 31 at Page 49, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Golconda Lode Claim (United States Mineral Survey No. 192), as set forth in Patent recorded November 11, 1880 in Book 59 at Page 141, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grand Island Lode Claim (United States Mineral Survey No. 61), as set forth in Patent recorded June 27, 1883 in Book 79 at Page 269, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grand View Lode Claim (United States Mineral Survey No. 297), as set forth in Patent recorded January 31, 1947 in Book 799 at Page 464, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grant County Lode Claim (United States Mineral Survey No. 115), as set forth in Patent recorded October 13, 1884 in Book 79 at Page 157, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Hidden Treasure Lode Claim (United States Mineral Survey No. 105), as set forth in Patent recorded November 1, 1875 in Book 31 at Page 423, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

An undivided 10/12ths interest in and to the Isabel Lode Claim (United States Mineral Survey No. 170), as set forth in Patent recorded June 17, 1883 in Book 79 at Page 81, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Jay Lode Claim (United States Mineral Survey No. 169), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 380279, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Kalamazoo Lode Claim (United States Mineral Survey No. 76), as set forth in Patent recorded August 9, 1946 in Book 887 at Page 304, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Lost Lode Claim (United States Mineral Survey No. 56), as set forth in Patent recorded January 22, 1887 in Book 79 at Page 217, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The No Name Lode Claim (United States Mineral Survey No. 77), as set forth in Patent recorded April 14, 1880 in Book 59 at Page 100, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Non Parail Lode Claim (United States Mineral Survey No. 6853), as set forth in Patent recorded January 28, 1911 in Book 339 at Page 77, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Southeasterly 500 feet of the Ontario Lode Claim (United States Mineral Survey No. 55), as set forth in Patent recorded July 7, 1875 in Book 31 at Page 310, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Poorman Lode Claim (United States Mineral Survey No. 42), as set forth in Patent recorded June 6, 1874 in Book V at Page 578, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Seven Thirty Lode Claim (United States Mineral Survey No. 71), as set forth in Patent recorded April 19, 1875 in Book 31 at Page 231, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Sherman Lode Claim (United States Mineral Survey No. 93), as set forth in Patent recorded January 15, 1885 in Book 79 at Page 161, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Silver Dollar Lode Claim (United States Mineral Survey No. 654), as set forth in Patent recorded July 25, 1884 in Book 237 at Page 122, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Socorro Lode Claim (United States Mineral Survey No. 104), as set forth in Patent recorded May 24, 1883 in Book 79 at Page 53, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Spencer Lode Claim (United States Mineral Survey No. 168), as set forth in Patent recorded February 5, 1878 in Book 49 at Page 210, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Fannie Lode Claim (United States Mineral Survey No. 659), as set forth in Patent recorded December 29, 1947 in Book 819 at Page 375, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

Parcel B

The Belcher Lode Mining Claim (United States Mineral Survey No. 150) located in the Grand Island Mining District, and embracing a portion of Township 1 South, Range 73 West of the 6th P.M., County of Boulder, State of Colorado,

Expressly excepting and excluding those portions thereof lying within the Caribou (United States Mineral Survey No. 37), Poorman (United States Mineral Survey No. 42), Grand Republic (United States Mineral Survey No. 51), Arizona (United States Mineral Survey No. 54), Ontario (United States Mineral Survey No. 55), Magnolia (United States Mineral Survey No. 58), Peabody (United States Mineral Survey No. 68), 730 (United States Mineral Survey No. 71), Sherman (United States Mineral Survey No. 93), Maine (United States Mineral Survey No. 102), Air Shaft (United States Mineral Survey No. 116), Stanton Island (United States Mineral Survey No. 124), 530 (United States Mineral Survey No. 137), Lode Mining Claims,

As excepted United States Patent recorded January 5, 1878, in Book 49 at Page 153.

Parcel C

The West 900.00 feet of the Ontario Lode Mining Claim (United States Mineral Survey No. 55) located in Grand Island Mining District and embracing a portion of the Northwest ¼ of Section 8, Township 1 South, Range 73 West of the 6th P.M., County of Boulder, State of Colorado,

Excepted any portion thereof lying within the Arizona Lode Mining Claim (United States Mineral Survey No. 54).

PARCEL A

THE COMSTOCK LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 52) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 13, 1888 IN BOOK 79 AT PAGE 273

PARCEL B

THE DEL LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 85) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MARCH 17, 1928 IN BOOK 452 AT PAGE 75

PARCEL C

THE STATEN ISLAND LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 124) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 5 AND 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MAY 20, 1935 IN BOOK 452 AT PAGE 118

PARCEL D

THE PROMISE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 149) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 2, 1912 IN BOOK 167 AT PAGE 211

PARCEL E

THE MONITOR LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 227) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK 59 AT PAGE 214

PARCEL F

THE MONADNOC LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 274) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK AT PAGE

PARCEL G

THE NEW YORK LODE MINING CLAIM AND NEW YORK MILL SITE CLAIM (UNITED STATES MINERAL SURVEY NO. 344A AND 344B) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED SEPTEMBER 29, 1896 IN BOOK 204 AT PAGE 113

PARCEL H

THE NORTHWESTERN LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 429) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK AT PAGE

PARCEL I

THE NAUTILUS LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 452) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK 59 AT PAGE 332

PARCEL J

THE LITTLE EDDIE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 716) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 7, 1906, IN BOOK 237 AT PAGE 48

PARCEL K

THE NORTH STAR LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 5269) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED FEBRUARY 15, 1912 IN BOOK 339 AT PAGE 102

PARCEL L

THE DEVELING LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 13510) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 4 AND 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED JUNE 9, 1903 IN BOOK 237 AT PAGE 108

PARCEL M

THE EUREKA LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 13685) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING SECTIONS 5 AND 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED JANUARY 25, 1904 IN BOOK 237 AT PAGE 128

PARCEL N

THE LAST CHANCE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14046) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED DECEMBER 19, 1979 UNDER RECEIPTION NO. 375456

PARCEL O

THE PANDORA #1 AND PANDORA #4 LODE MINING CLAIMS (UNITED STATES MINERAL SURVEY NO. 20597) LOCATED IN GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MARCH 1, 1961 IN BOOK 1175 AT PAGE 1

THE OPHIR LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 567) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED

AN UNDIVIDED 3/8 INTEREST IN THE CANADIAN LODE MINING CLAIM (UNITED STATES MINERAL SURVEY #866) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 6, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN AS SET FORTH AND PATENTED IN UNITED

THE ENTERPRISE LODE MINING CLAIM, SURVEY LOT NO. 19828 IN SECTIONS 4, 5, 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN, GRAND ISLAND MINING DISTRICT, EXCEPTING THOSE PORTIONS THEREOF EMBRACED IN RICO LODE MINING CLAIM AND APEX LODE MINING CLAIM, BOTH IN SURVEY LOT NO. 34286, ALSO EXCEPTING THOSE PORTIONS THEREOF EMBRACED IN OPHIR LODE MINING CLAIM SURVEY LOT NO. 567, AND CENTRAL LODE MINING CLAIM SURVEY LOT NO. 481.

Parcel P

THE ARLET NO. 1, NO. 2, NO. 3 AND NO. 4 LODE MINING CLAIMS (U.S. SURVEY NO. 16705) AND THE STANDARD NO. 8 LODE MINING CLAIM (U.S. MINERAL SURVEY NO. 15088) AND THE STANDARD NO. 6 AND NO. 9 LODE MINING CLAIMS (U.S. MINERAL SURVEY NO. 16705); LYING NORTH AND WEST OF THE SOUTH LINE OF THE AFORESAID ARLET NO. 1 LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 9 AND 16 IN TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO,

EXPRESSLY EXCEPTING AND EXCLUDING ALL THAT PORTION OF NATION NO. 2 AND NATION NO. 3 LODE CLAIM SURVEY NO. 15637, AS EXCEPTED AND EXCLUDED IN PATENT RECORDED APRIL 9, 1991 ON FILM 1668 AS RECEPTION NO. 1096724.

Parcel Q

NATIONAL PLACER (U.S. SURVEY NO. 17718) LOCATED IN GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO.

Parcel R

THE AMERICAN FLAG LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12790); AND

EAGLE BIRD LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12790); EXPRESSLY EXCEPTING AND EXCLUDING ANY PORTION OF SAID EAGLE BIRD LODE MINING CLAIM EMBRACED IN THE SWEET HOME LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12597), AS EXCEPTED AND EXCLUDED IN UNITED STATES PATENT RECORDED DECEMBER 2, 1922 IN BOOK 452 AT PAGE 94;

BOTH LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 9, 10, AND 15, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO,

AND

EAST ST. LOUIS LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14592);

ELONDIKE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14592);

BOTH LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO.

PARCEL A:

AMERICAN FLAG LODE, U.S. Mineral Survey No. 12790,
ARIZONA LODE (EAST 500 FEET), U.S. Mineral Survey No. 54,

ARLET NO. 1 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 2 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 3 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 4 LODE, U.S. Mineral Survey No. 16705,

BARABLAS LODE, U.S. Mineral Survey No. 15588,
BELCHER LODE, U.S. Mineral Survey No. 150,
BRAZILIAN LODE, U.S. Mineral Survey No. 13367A,
BRAZILIAN MILL SITE, U.S. Mineral Survey No. 13367B,

CALIFORNIA LODE, U.S. Mineral Survey No. 20483,
CANADIAN LODE (UNDIVIDED 3/8), U.S. Mineral Survey No. 666,
CANDIA LODE, U.S. Mineral Survey No. 20483,
CARIBOU LODE, U.S. Mineral Survey No. 37,
CARRY LODE, U.S. Mineral Survey No. 660,

COLUMBIA LODE, U.S. Mineral Survey No. 167,
COMSTOCK LODE, U.S. Mineral Survey No. 52,
DEVELING LODE, U.S. Mineral Survey No. 13510,
DOUGLAS LODE, U.S. Mineral Survey No. 47,
EAGLE BIRD LODE, U.S. Mineral Survey No. 12790,

EAST IDAHO LODE (UNDIVIDED 50%), U.S. Mineral Survey No. 346,
EAST ST. LOUIS LODE, U.S. Mineral Survey No. 14592,
ENTERPRISE LODE (UNDIVIDED 50%), U.S. Mineral Survey No. 19828,
EUREKA LODE, U.S. Mineral Survey No. 13685,
EXTENSION LODE, U.S. Mineral Survey No. 92,

PANNIE LODE, U.S. Mineral Survey No. 639,
FEDERAL LODE, U.S. Mineral Survey No. 91,
GOLCONDA LODE, U.S. Mineral Survey No. 192,
GRAND ISLAND LODE, U.S. Mineral Survey No. 61,
GRAND VIEW LODE, U.S. Mineral Survey No. 297,

GRANT COUNTY LODE, U.S. Mineral Survey No. 115,
HIDDEN TREASURE LODE, U.S. Mineral Survey No. 105,
ISABEL LODE (UNDIVIDED 10/12), U.S. Mineral Survey No. 170,
IXL LODE, U.S. Mineral Survey No. 85,

JAY LODE, U.S. Mineral Survey No. 169,
KALAMAZOO LODE, U.S. Mineral Survey No. 76,
KLONDIKE LODE, U.S. Mineral Survey No. 14592,
LAST CHANCE LODE, U.S. Mineral Survey No. 14246,
LITTLE EDDIE LODE, U.S. Mineral Survey No. 716,

LOST LODE, U.S. Mineral Survey No. 56,
MONADNOC LODE, U.S. Mineral Survey No. 274,

MONITOR LODE, U.S. Mineral Survey No. 227,
NATIONAL PLACER, U.S. Mineral Survey No. 17718,
NAUTILUS LODE, U.S. Mineral Survey No. 452,

NEW YORK LODE, U.S. Mineral Survey No. 344A,
NEW YORK MILLSITE, U.S. Mineral Survey No. 344B,
NO NAME LODE, U.S. Mineral Survey No. 77,
NON PAREIL, U.S. Mineral Survey No. 6859,
NORTH STAR LODE, U.S. Mineral Survey No. 5269,

NORTH PARK LODE, U.S. Mineral Survey No. 20483,
NORTHWESTERN LODE, U.S. Mineral Survey No. 429,
ONTARIO LODE (SOUTHEASTERLY 500 FEET), U.S. Mineral Survey No. 55,
ONTARIO LODE (WEST 900 FEET), U.S. Mineral Survey No. 55,
OPHIR LODE, U.S. Mineral Survey No. 387,

PANDORA #1 LODE, U.S. Mineral Survey No. 20597,
PANDORA #4 LODE, U.S. Mineral Survey No. 20597,
POORMAN LODE, U.S. Mineral Survey No. 42,
PROMISE LODE, U.S. Mineral Survey No. 149,
SEVEN THIRTY LODE, U.S. Mineral Survey No. 71,

SHERMAN LODE, U.S. Mineral Survey No. 93,
SILVER DOLLAR LODE, U.S. Mineral Survey No. 654,
SOCORRO LODE, U.S. Mineral Survey No. 104,
SPENCER LODE, U.S. Mineral Survey No. 168,
STANDARD NO. 6 LODE, U.S. Mineral Survey No. 16705,

STANDARD NO. 8 LODE, U.S. Mineral Survey No. 16705,
STANDARD NO. 9 LODE, U.S. Mineral Survey No. 16705,
STATEN ISLAND LODE, U.S. Mineral Survey No. 124,
TOLEDO LODE, U.S. Mineral Survey No. 20483,
County of Boulder, State of Colorado.

PARCEL B:

7-49 LODE (UNDIVIDED 1/3), U.S. Mineral Survey No. 16199,
AIRSHAFT, U.S. Mineral Survey No. 116,
ALPINE LODE, U.S. Mineral Survey No. 14286,
AMANDA LODE, U.S. Mineral Survey No. 13172,
AMERICAN LODE, U.S. Mineral Survey No. 14286,

ANACONDA LODE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 12934,
ANACONDA LODE (T.S. HENDRICKS' SURFACE), U.S. Mineral Survey No. 12934,
APEX LODE, U.S. Mineral Survey No. 14286,
ARIZONA LODE (WEST 900 FEET), U.S. Mineral Survey No. 54,
BOB TAIL LODE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 13180,

BOB TAIL LODE, SURFACE - OWNED BY T.S. HENDRICKS), U.S. Mineral Survey No. 13180,
BROKEN BOW LODE, (SUBSURFACE), U.S. Mineral Survey No. 13146,
CENTRAL LODE, U.S. Mineral Survey No. 481,
CHIEF LODE, U.S. Mineral Survey No. 15637,
CONGER LODE, U.S. Mineral Survey No. 94A,

CROSS LODE, U.S. Mineral Survey No. 518,
CROSS MILLSITE, U.S. Mineral Survey No. 20681B,
CROSS NO. 2 LODE, U.S. Mineral Survey No. 20681A,
CROWN POINT LODE, U.S. Mineral Survey No. 6823,
DEFIANCE LODE, U.S. Mineral Survey No. 5868,

EMILIE LODE (UNDIVIDED 1/3), U.S. Mineral Survey No. 16199,
GARFIELD LODE (UNDIVIDED 3/8), U.S. Mineral Survey No. 322,
GARFIELD LODE (UNDIVIDED 5/8), U.S. Mineral Survey No. 322,
GILPIN COUNTY LODE, (SMITH TRUST MINING LEASE, U.S. Mineral Survey No. 12933,
GOLD COIN, U.S. Mineral Survey No. 18514,

HOMESTEAD LODE (SMITH TRUST MINING LEASE), U.S. Mineral Survey No. 13471,
IDAHO LODE (39/143 INT.), U.S. Mineral Survey No. 96A,
IDAHO MILLSITE (221/858 INT.), U.S. Mineral Survey No. 96B,
IRON KING (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,
IRON KING NO. 2, (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,

IRON WONDER (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,
ISABEL LODE (UNDIVIDED 2/12), U.S. Mineral Survey No. 170,
JULIET LODE, U.S. Mineral Survey No. 13272,
LAFAYETTE LODE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 12934,
LAFAYETTE LODE (SURFACE - THOMAS S. HENDRICKS), U.S. Mineral Survey No. 12934,

LARAMIE COUNTY LODE (SMITH TRUST MINING LEASE), U.S. Mineral Survey No. 13471,
LARAMIE COUNTY NO. 2 LODE, U.S. Mineral Survey No. 13471,
L.S. ROOT MILLSITE, U.S. Mineral Survey No. 117,
MAINE LODE, U.S. Mineral Survey No. 102,
MAMMOTH LODE, U.S. Mineral Survey No. 13272,
MONTICELLO LODE, U.S. Mineral Survey No. 15637,

NATION LODE, U.S. Mineral Survey No. 12985,
NATION NO. 2 LODE, U.S. Mineral Survey No. 15637,
NATION NO. 3 LODE, U.S. Mineral Survey No. 15637,
PAY ROCK LODE, U.S. Mineral Survey No. 8480,
PONDEROSA LODE, U.S. Mineral Survey No. 13172,

POTOSI LODE, U.S. Mineral Survey No. 48,
PROTECTION LODE, U.S. Mineral Survey No. 13272,
RARE METALS LODE, U.S. Mineral Survey No. 20681A,
RARE METALS MILLSITE, U.S. Mineral Survey No. 20681B,
READY CASH LODE, U.S. Mineral Survey No. 6852,

RICO LODE, U.S. Mineral Survey No. 14286,
ROBERTS PLACER (SUBSURFACE ONLY), U.S. Mineral Survey No. 14284,
ROMEO LODE, U.S. Mineral Survey No. 13272,
SILVER BRICK LODE, U.S. Mineral Survey No. 159,
SILVER POINT LODE, U.S. Mineral Survey No. 39,

SMUGGLER LODE, U.S. Mineral Survey No. 13219,
SUNNY VIEW LODE, U.S. Mineral Survey No. 13471,
SYNDICATE LODE, U.S. Mineral Survey No. 15609,
TACOMA LODE, U.S. Mineral Survey No. 13272,

TEN FORTY LODE, U.S. Mineral Survey No. 287,
WINDY POINT LODE, U.S. Mineral Survey No. 16926,
WORCESTER LODE, U.S. Mineral Survey No. 14286,
County of Boulder, State of Colorado.

Parcel A

Dutch Park Lode Claim (United States Mineral Survey No. 16838) located in the Grand Island Mining District, as set forth in Patent recorded April 21, 1937 at Book 398 at Page 441, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

Congo Chief Lode Claim located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded August 13, 1925 in Book 320 Page 280 Boulder County embracing portions of Section 5, Township 1 South Range 73 West of the Sixth Principal Meridian.

Congo Chief #2 Lode Claim located in the Grand Island Mining District, as set forth in the Location Certificate recorded October 22, 1917 in Book 332 Page 493 Boulder County embracing portions of Section 4, Township 1 South Range 73 West of the Sixth Principal Meridian.

Chester City Lode Claim 1/8th interest located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded March 5, 1907 in Book 230 Page 24 Boulder County embracing portions of Section 24, Township 1 North Range 72 West of the Sixth Principal Meridian

London Lode Claim 1/8th interest located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded September 19, 1969 in Film #0679 Boulder County embracing portions of Section 24, Township 1 North Range 72 West of the Sixth Principal Meridian.