

## SAFETY DATA SHEET

Lakewood Energy Services : 14745 Robin Circle Yukon, OK 73099  
Emergency Telephone (800)535-5035 or (405)999-0204

### SECTION 1: Product Identification and Emergency Information

PRODUCT NAME: Lakewood Energy Services Live Oil

SYNONYMS: ABO, Live Oil, Slick Oil, Spotting Fluid

PRODUCT USE DESCRIPTION: Asphaltene based Drilling Mud Additive for Lubricity

MANUFACTURER: Lakewood Energy Services, 14745 Robin Circle Yukon, OK 73099

EMERGENCY PHONE: (800) 535-5035 or (405) 999-0204

### SECTION 2: Hazard Identification

#### Emergency Overview

Regulatory Status: This material is considered hazardous by the Occupational Safety & Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

#### GHS Classification

Flammable Liquids	-	Category 3
Germ Cell Mutagenicity	-	Category 1B
Carcinogenicity	-	Category 1A
Specific Target Organ Toxicity Single Exposure	-	Category 3
Specific Target Organ Toxicity Repeat Exposure	-	Category 2

#### GHS Label Elements

Symbols:



Signal Word: DANGER

Hazard Summary: Flammable, Toxic. May cause fire.

### **Potential Health Effects**

**EYE CONTACT:** May cause eye irritation. If splashed in to eyes flush with potable water or eye irrigation fluid for 15 minutes or until irritation subsides. If irritation persists, call a physician.

**SKIN:** Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry clean clothing before re-use. If product is injected under the skin, the individual should be evaluated by a physician.

**INGESTION:** If ingested, DO NOT induce vomiting; call a physician immediately.

**INHALATION:** Vapor inhalation under ambient conditions is normally not a problem, but may cause respiratory tract irritation. If overcome by vapor from hot product, immediately remove victim from exposure and call a physician. If Breathing is irregular or has stopped, start resuscitation by trained personnel.

**CHRONIC EXPOSURE:** This material contains polynuclear aromatic hydrocarbons (PNA's), some of which are animal carcinogens. Contains benzene, which can cause blood disease, including anemia and leukemia.

**TARGET ORGANS:** Skin, Eyes, Central nervous system, Respiratory system, Kidney, Liver.

### **SECTION 3: Composition/Information on Ingredients**

Components:	CAS Number	APPROX % WT.
Lubricating Oil, rerefined	70514-12-4	100%
Asphaltene Content		0 - 30%
Sulfur Compounds	7704-34-9	0 – 1.5%
N-hexane	110-54-3	0 – 1.5%
Benzene	71-43-2	0 – 3.0%
Water	7732-18-5	0 – 2.0%
Cumene	98-82-8	Trace - <1.0%
Naphthalene	91-20-3	Trace - <1.0%
Xylene	1330-20-7	Trace - <1.0%
Ethylbenze	100-41-4	Trace - <1.0%
Toluene	108-88-3	Trace - <1.0%

### **SECTION 4: First Aid Measures**

**INHALATION:** Move to fresh air. If breathing is irregular or has stopped, administer oxygen or resuscitation by trained personnel if needed. Seek medical attention immediately.

**SKIN:** In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry clean clothing before re-use. Seek medical attention if irritation or skin thermal burns occur.

**EYE CONTACT:** If splashed in to eyes, immediately flush with potable water or eye irrigation fluid for 15 minutes or until irritation subsides. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Seek medical attention immediately.

INGESTION: If ingested, DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention immediately. If vomiting does occur naturally, keep head below the hips to reduce the risks of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated. Call a physician immediately.

## **SECTION 5: Fire and Explosion Hazard Information**

Form	:	Liquid
Flash point	:	Variable >100.0°F (38°C)
Lower explosive limit	:	Variable
Upper explosive limit	:	Variable
Suitable extinguishing Media	:	Small Fires: Any extinguisher suitable for Class B fires, dry chemical, CO <sub>2</sub> , water spray, firefighting foam, or Halon. Large Fires: Water spray, fog or fire-fighting foam. Water may ineffective for fighting the fire, but may be used to cool fire-exposed containers.
Specific hazards during Fire-fighting	:	Vapors are heavier than air and may travel long distances to a point of ignition and flash back. Do not allow liquid run off to enter sewers or public waters. Gas may form explosive mixture with air.
Special protective equipment: For fire fighters	:	Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus and fully protective clothing such as bunker gear if needed to prevent exposure.
Further information	:	Isolate area, particularly around ends of storage vessels. Cool tanks, shells and containers exposed to fire and excessive heat with water. Major fires may require withdrawal, allowing the tank to burn.

## **SECTION 6: Accidental Release Measures**

Personal Precautions:	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 contain spill area
Environmental Precautions:	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 firefighting foam may be useful in certain situations to reduce vapors.
Methods for cleaning up:	Take up with sand or 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)

## SECTION 7: Handling and Storage

Handling	:	Handle as a flammable liquid. Keep product and empty containers away from fire, sparks and heated surfaces. 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.
Requirements for storage	:	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 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".

## SECTION 8: Exposure Controls / Personal Protection

### Exposure Guidelines

List	Components	CAS-no.	Type:	Value
OSHA	Benzene	71-43-2	TWA	1 ppm
		71-43-2	STEL	5 ppm
		71-43-2	OSHA-AL	0.5 ppm
	N-Hexane	110-54-3	PEL	500 ppm 1,800 mg/m3
	Cumene	98-82-8	TWA	50 ppm
	Ethylbenzene	100-4-4	TWA	100 ppm
	Naphthalene	91-20-3	TWA	10 ppm
	Toluene	108-88-3	TWA	200 ppm
	Xylene	1330-20-7	TWA / Ceiling	100 ppm / 300 ppm
ACGIH	Benzene	71-43-2	TWA	0.5 ppm
		71-43-2	STEL	2.5 ppm
	Cumene	98-82-8	TWA	50 ppm
	Ethylbenzene	100-4-4	TWA	50 ppm
		100-4-4	STEL	125 ppm
	Napthalene	91-20-3	TWA	10 ppm
		91-20-3	STEL	15 ppm
	Toluene	108-88-3	TWA	20 ppm
	Xylene	1330-20-7	TWA	100 ppm
		1330-20-7	STEL	150 ppm

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

Eye protection: Ensure that eyewash stations and safety showers are close to the workstation location. Goggles, and face shields or full face piece pressure demand supplied air respirator as needed to prevent eye and face contact.

- Hand protection: Gloves constructed of nitrile, neoprene, or PVC are recommended. The resistance of specific material may vary from product to product as well as with degree of exposure.
- Skin & body protection: Chemical protective clothing such as DuPont TyChem®, Barricade or equivalent, recommended based on degree of exposure.
- Respiratory protection: A NIOSH/MSHA approved air purifying respirator with organic vapor cartridges or canister may be permissive under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits for odor or irritation. Protection provided by air purifying respirators is limited.
- Hygiene measures: Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking or using toilet facilities. DO NOT use gasoline, kerosene, solvents, or harsh abrasive skin cleaners to clean skin. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use good personal hygiene practices.

## **SECTION 9: Physical Data**

- Form : Liquid
- Appearance : Variable. Typical is an amber, dark brown to greenish black liquid.
- Odor : Petroleum asphalt odor.
- Flash point – typical: > 100.0°F (38° C)
- Lower explosive limit: Variable
- Upper explosive limit: Variable
- pH : Not applicable
- Percent volatiles: Variable
- Specific Gravity: < 1

## **SECTION 10: Stability & Reactivity**

- Materials to avoid : Strong Oxidizers
- Hazardous decomposition: Carbon monoxide, carbon dioxide & uncombusted hydrocarbon products (smoke).

## SECTION 11: Toxicology Information

### Carcinogenicity

**NTP** : Benzene (CAS-No: 71-43-2)  
Naphthalene (CAS-No: 91-20-3)

**IARC** : Benzene (CAS-No: 71-43-2)  
Naphthalene (CAS-No: 91-20-3)  
Ethylbenzene (CAS-No: 100-41-4)

**OSHA** : Benzene (CAS-No: 71-43-2)

**CA Prop 65** : WARNING! This product contains a chemical known to the State of California to cause cancer.  
Benzene (CAS-No: 71-43-2)  
Toluene (CAS-No: 108-88-3)

: WARNING! This product contains a chemical known to the State of California to cause Birth defects or other reproductive harm.  
Benzene (CAS-No. 71-43-2)

### COMPONENT

Petroleum Crude Oil	8002-05-9	<u>Acute oral toxicity:</u> LD 50 rat Dose: 5,001 mg/kg  <u>Acute dermal toxicity:</u> LD 50 rabbit Dose: 2,001 mg/kg  <u>Skin irritation</u> – Result: Mild skin irritation  <u>Eye irritation</u> – Result: Mild eye irritation  <u>Carcinogenicity:</u> N11.00418605
N-Hexane	110-54-3	<u>Acute oral toxicity:</u> LD 50 rat Dose: 25,000 mg/kg  <u>Acute dermal toxicity:</u> LD 50 rabbit Dose: 2,001 mg/kg  <u>Acute inhalation toxicity:</u> LC50 rat Dose: 171.6 mg/l Exposure time: 4 hours  <u>Skin irritation</u> – Classification: Irritating to skin Result: Skin irritation  <u>Eye irritation</u> – Classification: Irritating to eyes Result: Mild eye irritation  <u>Teratogenicity:</u> N11.00418960

Sulfur	7704-34-9	<p><u>Acute oral toxicity</u>: LD 50 rat Dose: 5,001 mg/kg</p> <p><u>Acute dermal toxicity</u>: LD 50 rabbit Dose: 2,001 mg/kg</p> <p><u>Acute inhalation toxicity</u>: LC 50 rat Dose: 9.24 mg/l Exposure time: 4 hours</p> <p><u>Eye irritation</u> – Classification: Irritating to eyes. Result: Mild eye irritation.</p>
Benzene	71-43-2	<p><u>Acute oral toxicity</u>: LD 50 rat Dose: 930 mg/kg</p> <p><u>Acute inhalation toxicity</u>: LC 50 rat Dose: 44 mg/l Exposure time: 4 hours</p> <p><u>Skin irritation</u> – Classification: Irritating to skin Result: Mild skin irritation Repeated or prolonged exposure may cause skin irritation and Dermatitis, due to degreasing properties of the product.</p>
Toluene	108-88-3	<p><u>Acute oral toxicity</u>: LD 50 rat Dose: 636 mg/kg</p> <p><u>Acute dermal toxicity</u>: LD 50 rabbit Dose: 12,124 mg/kg</p> <p><u>Acute inhalation toxicity</u>: LC50 rat Dose: 49 mg/l Exposure time: 4 hours</p> <p><u>Skin irritation</u> – Classification: Irritating to skin Result: Mild skin irritation Prolonged skin contact may defat the skin &amp; produce dermatitis.</p> <p><u>Eye irritation</u> – Classification: Irritating to eyes Result: Mild eye irritation</p>
Xylene	1330-20-7	<p><u>Acute oral toxicity</u>: LD 50 rat Dose: 2,840 mg/kg</p> <p><u>Acute dermal toxicity</u>: LD 50 rabbit Dose: 4,500 mg/kg</p> <p><u>Acute inhalation toxicity</u>: LC50 rat Dose: 6,350 mg/l</p>

Exposure time: 4 hours

Skin irritation – Classification: Irritating to skin

Result: Mild skin irritation

Repeated or prolonged exposure may cause skin irritation and Dermatitis, due to degreasing properties of the product.

Eye irritation – Classification: Irritating to eyes

Result: Mild eye irritation

Naphthalene

91-20-3

Acute oral toxicity: LD 50 rat

Dose: 2,001 mg/kg

Acute dermal toxicity: LD 50 rabbit

Dose: 2,501 mg/kg

Acute inhalation toxicity: LC50 rat

Dose: 101 mg/l

Exposure time: 4 hours

Skin irritation – Classification: Irritating to skin

Result: Mild skin irritation

Eye irritation – Classification: Irritating to eyes

Result: Mild eye irritation

Carcinogenicity: N11.00422130

Ethylbenzene

100-41-4

Acute oral toxicity: LD 50 rat

Dose: 3,500 mg/kg

Acute dermal toxicity: LD 50 rabbit

Dose: 15,500 mg/kg

Acute inhalation toxicity: LC50 rat

Dose: 18 mg/l

Exposure time: 4 hours

Skin irritation – Classification: Irritating to skin

Result: Mild skin irritation

Eye irritation – Classification: Irritating to eyes

Result: Risk of serious damage to eyes.

## SECTION 12: Toxicology Information

### Additional ecological Information

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

### Component:

N-hexane

110-54-3

Toxicity to fish:



LC50  
Species: Pimephales promelas (flathead minnow)  
Dose: 2.5 mg/l  
Exposure time: 96 hours

Acute and prolonged toxicity for aquatic invertebrates  
EC50  
Species: Daphnia magna (Water flea)  
Dose: 2.1 mg/l  
Exposure time: 48 hours

Sulfur 7704-34-9

Acute and prolonged toxicity for aquatic invertebrates  
EC50  
Species: Daphnia magna (Water flea)  
Dose: > 10,000 mg/l  
Exposure time: 24 hours

### SECTION 13: Disposal Considerations

**Disposal** : Consult federal, state and local waste regulations to determine appropriate waste characterization of material and allowable disposal methods.

### SECTION 14: Transportation Information

#### DOT

Proper shipping name : Flammable Liquid, N.O.S (Contains Petroleum Crude Oil)  
UN-No. : UN-1993  
Class : 3  
Packing group : III  
Placard :



#### TDG

Proper shipping name : Flammable Liquid, N.O.S.  
UN-No. : UN-1993  
Class : 3  
Packing group : III

### **IATA Cargo Transport**

UN UN-No.	:	UN-1993
Description of the goods:	:	Flammable Liquid, N.O.S.
Class	:	3
Packaging group	:	III
ICAO – Labels	:	3
Packing instructions (cargo aircraft)	:	364
Packing instructions (cargo aircraft)	:	Y341

### **IATA Passenger Transport**

UN UN-No.	:	UN-1993
Description of the goods:	:	Flammable Liquid, N.O.S.
Class	:	3
Packaging group	:	III
ICAO – Labels	:	3
Packing instructions (passenger aircraft)	:	353
Packing instructions (passenger aircraft)	:	Y341

### **IMDG-Code**

UN-No.	:	UN-1993
Description of the goods:	:	Flammable Liquid, N.O.S.
Class	:	3
Packaging group	:	III
IMDG – Labels	:	3
EmS Number	:	F-E-S-E
Marine Pollutant	:	No

## **SECTION 15: Regulatory Information**

OSHA Hazards	:	Flammable liquid Toxic by inhalation Moderate skin irritant Moderate eye irritant Carcinogen Teratogen
TSCA Status	:	On TSCA Inventory
DSL Status	:	All components of this product are on the Canadian DSL list
SARA 311/312 Hazards	:	Fire Hazard Acute Health Hazard Chronic Health Hazard

**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, fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause cancer.

Benzene 71-43-2

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Benzene 71-43-2  
Toluene 108-88-3

**SECTION 16: Other Information****NFPA® Hazard Rating**

Health	1
Fire	3
Reactivity	0

**HMIS® Hazard Rating**

Health	1	Slight
Fire	3	Serious
Physical	0	Minimal
		*Chronic

Further information

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 a 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.