

**DirectDrill™ Emulsifier**

Version 1.2

Revision Date 2021-04-08

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product information**

Product Name : DirectDrill™ Emulsifier
Material : 1123812

Company : Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:**Health:**

866.442.9628 (North America)
1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture**

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification : Combustible dust

Labeling

Signal Word : Warning

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Hazard Statements : May form combustible dust concentrations in air.

Potential Health Effects

Physical Hazards : Mechanical processing may form combustible dust concentrations in air and thermal processing at elevated temperatures may generate simple hydrocarbons and carbon oxides.

Carcinogenicity:**IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 3: Composition/information on ingredients

Synonyms : DRILLING MUD ADDITIVE

Molecular formula : UVCB

Component	CAS-No.	Weight %
Acid modified petroleum residuum	Proprietary	80 - 85

SECTION 4: First aid measures

General advice : No hazards which require special first aid measures.

If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact : Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point : Not applicable

Autoignition temperature : No data available

Specific hazards during fire fighting : Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

Special protective : Wear self-contained breathing apparatus for firefighting if

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- equipment for fire-fighters : necessary.
- Further information : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Fire and explosion protection : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

SECTION 6: Accidental release measures

- Personal precautions : Avoid dust formation.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : Pick up and arrange disposal without creating dust. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal.
- Additional advice : Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
- Advice on protection against fire and explosion : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

Storage

- Requirements for storage areas and containers : Electrical installations / working materials must comply with the technological safety standards.
- Advice on common storage : No materials to be especially mentioned.

SECTION 8: Exposure controls/personal protection**Engineering measures**

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Consider the potential hazards of this material (see Section 2), 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.

Personal protective equipment

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection : Wear as appropriate: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Lightweight protective clothing.
- Hygiene measures : General industrial hygiene practice.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form : Powder
- Physical state : solid
- Color : Dark Brown, Black
- Odor : no odor
- Odor Threshold : Not applicable

Safety data

- Flash point : Not applicable
- Lower explosion limit : Not applicable
- Upper explosion limit : Not applicable

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Autoignition temperature	: No data available
Thermal decomposition	: No data available
Molecular formula	: UVCB
pH	: 7 - 10
Boiling point/boiling range	: Not applicable
Vapor pressure	: Not applicable
Relative density	: Not applicable
Density	: 1.54 g/cm ³
Water solubility	: partly soluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: Not applicable

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.
Possibility of hazardous reactions	
Hazardous reactions	: Further information: Stable under recommended storage conditions., No hazards to be specially mentioned.
Conditions to avoid	: No data available.
Thermal decomposition	: No data available
Other data	: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

DirectDrill™ Emulsifier Acute oral toxicity	: LD50: > 5,000 mg/kg Species: Rat Sex: male and female
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Acute inhalation toxicity : LC50: > 5.3 mg/l
 Exposure time: 4 h
 Species: Rat
 Sex: male and female
 Test atmosphere: dust/mist
 Method: OECD Test Guideline 403
 Rats exposed to a 5.3 mg/L dust aerosol for 4-hr resulted in effects generally expected with high concentrations of dust aerosols made of relatively dense particles. Higher lung weight and atelectasis persisted after the 14-day recovery period. There were no reports of lethality or any significant clinical observations. There was however an acute inflammatory response with evidence of recovery after 14-days. The presence of particulate matter with indication of partial clearance from the lung after the 14-day recovery period was noted. These effects would not be expected during normal operating conditions when using this substance.

**DirectDrill™ Emulsifier
 Acute dermal toxicity** : No data available

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 Skin irritation** : No skin irritation

**DirectDrill™ Emulsifier
 Eye irritation** : No eye irritation

**DirectDrill™ Emulsifier
 Sensitization** : Did not cause sensitization on laboratory animals.

**DirectDrill™ Emulsifier
 Repeated dose toxicity** : Species: Rat, male and female
 Sex: male and female
 Application Route: oral gavage
 Dose: 0, 250, 500, 1000 mg/kg
 Exposure time: 43 - 54 D
 Number of exposures: daily
 NOEL: 1,000 mg/kg
 Method: OECD Guideline 422

**DirectDrill™ Emulsifier
 Genotoxicity in vitro** : Test Type: Ames test
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative
 Remarks: In vitro tests did not show mutagenic effects

Test Type: Chromosome aberration test in vitro
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative
 Remarks: In vitro tests did not show mutagenic effects

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Test Type: Mouse lymphoma assay
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative
 Remarks: In vitro tests did not show mutagenic effects

**DirectDrill™ Emulsifier
Reproductive toxicity**

: Species: Rat
 Sex: male and female
 Application Route: oral gavage
 Dose: 0, 250, 500, 1000 mg/kg
 Exposure time: 43-54 D
 Number of exposures: daily
 Method: OECD Guideline 422
 NOAEL Parent: 1,000 mg/kg
 NOAEL F1: 1,000 mg/kg

**DirectDrill™ Emulsifier
Developmental Toxicity**

: Species: Rat
 Application Route: oral gavage
 Dose: 0, 250, 500, 1000 mg/kg
 Number of exposures: daily
 Test period: 54 D
 NOAEL Teratogenicity: 1,000 mg/kg
 NOAEL Maternal: 1,000 mg/kg

Toxicology Assessment**DirectDrill™ Emulsifier
CMR effects**

: Carcinogenicity:
 Not available
 Mutagenicity:
 Tests on bacterial or mammalian cell cultures did not show
 mutagenic effects.
 Teratogenicity:
 Animal testing did not show any effects on fetal development.
 Reproductive toxicity:
 Animal testing did not show any effects on fertility.

SECTION 12: Ecological information**Ecotoxicity effects****Toxicity to fish**

: LC50: > 240 mg/l
 Exposure time: 96 h
 Species: Scophthalmus maximus (Flatfish, Flounder)
 semi-static test Method: OECD Test Guideline 203

**Toxicity to daphnia and
other aquatic invertebrates**

: LC50: 380 mg/l
 Exposure time: 48 h
 Species: Acartia tonsa (Marine Copepod)
 static test Method: ISO TC147/SC5/WG2

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Toxicity to algae	: EbC50: 240 mg/l Exposure time: 72 h Species: Skeletonema costatum (Marine Algae) static test Method: ISO 10253 ErC50: 390 mg/l Exposure time: 72 h Species: Skeletonema costatum (Marine Algae) static test Method: ISO 10253
Biodegradability	: 3 % Testing period: 28 d Method: Closed Bottle test According to the results of tests of biodegradability this product is not readily biodegradable.
Elimination information (persistence and degradability)	
Bioaccumulation	: The product may be accumulated in organisms.
Mobility	: immobile Adsorption to solid soil phase is possible.
Additional ecological information	: This material is not expected to be harmful to aquatic organisms.
Ecotoxicology Assessment	

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

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

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

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US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**National legislation**

SARA 311/312 Hazards : Combustible dust

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

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

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SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

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

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations

Pennsylvania Right To Know : No components are subject to the Pennsylvania Right to Know Act.

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

Notification status

Europe REACH : This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).

United States of America (USA) TSCA : On or in compliance with the active portion of the TSCA inventory

Canada DSL : All components of this product are on the Canadian DSL

Australia AICS : On the inventory, or in compliance with the inventory

New Zealand NZIoC : Not in compliance with the inventory

Japan ENCS : On the inventory, or in compliance with the inventory

Korea KECI : A substance(s) in this product was not registered, notified to be registered, or exempted from registration

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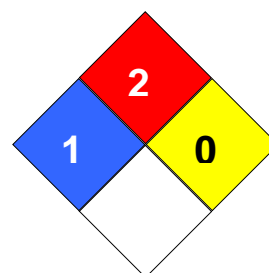
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by CPCChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

Philippines PICCS : On the inventory, or in compliance with the inventory
 China IECSC : On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
 Fire Hazard: 2
 Reactivity Hazard: 0

**Further information**

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act

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>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		