

SAFETY DATA SHEET

Section 1: IDENTIFICATION

Product Name: StarDril
Recommended Use: Drilling Fluid Additive
Supplier: Bri-Chem Supply Ltd.
27075 Acheson Road
Acheson, AB T7X 6B1
Phone Number: 780-962-9490
Emergency Phone: CHEMTREC 1-800-424-9300, 24/7

Section 2: HAZARD(S) IDENTIFICATION

Hazard Classification: Non-hazardous
Priority and Secondary Identifiers: Non-hazardous
Risk and Safety Phrases: Respiratory tract irritant, irritant (eyes).

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterization: Modified Polysaccharide

Product Components:

Name	CAS	Proportion
Modified Starch	9063-38-1	100%
None	NR	<1%

Section 4: FIRST-AID MEASURES

Necessary First Aid Measures

Inhalation: Exposure via inhalation is not likely. If inhaled, remove to fresh air.
Skin: Wash skin with soap and water.
Eyes: Flush eyes with water for 15 minutes, seek medical attention.
Ingestion: If swallowed, dilute by drinking large quantities of water, seek medical attention.
Chronic Exposure: No data
Carcinogenicity: Not likely a carcinogen.
Workplace Facilities: No special facilities required.
Required Instructions: Observe good work practices to minimize skin contact. Wash hands and exposed skin after use. Do not eat or drink while using.
Notes for Medical Personnel: Apply symptomatic therapy.

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Section 5: FIRE-FIGHTING MEASURES

Type of Hazard:	-
Fire Hazard Properties:	-
Regulatory Requirements:	-
Extinguishing Media and Methods:	Water, CO2, dry powder or foam.
Hazchem Code:	-
Recommended Protective Clothing:	When fighting a major fire, wear full protective clothing including breathing apparatus.

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures:	Sweep up and flush area with water. Caution: Wet floors may be slippery when material is present. Avoid production of dust.
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Section 7: HANDLING AND STORAGE

Precautions for Safe Handling:	Avoid practices which produce dust. Store away from heat, flame and spark source.
Regulatory Requirements:	N/A
Handling Practices:	N/A
Approved Handlers:	Not required
Conditions for Storage:	Store away from heat, flame and spark source
Store Site Requirements:	-
Packaging:	-

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Workplace Exposure Standards:	-
Application in the Workplace:	Prevent exposure by using engineering controls, personal protective equipment, and proper work practices. Avoid the creation of dust.
Exposure Standards Outside the Workplace:	TEL and EELs are not set at this time.
Engineering Controls:	Ventilation as needed to control dust.
Personal Protection:	Dust respirator (NIOSH/MSHA TC-21C-132) as needed Eye protection Protective gloves
References:	N/A

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Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Specify Product Data

Physical State:	Solid
Solubility in Water:	Complete
pH (4% sol):	10.0 – 11.0
Density (Lb./Cu. Ft.):	30 – 40
Appearance:	Off white powder, slight odor
Required Specifications:	N/A
Further Specifications:	N/A
Specific Advice:	-

Section 10: STABILITY AND REACTIVITY

Stability of the Substance:	Stable under normal conditions of use and storage.
Conditions to Avoid:	Dust-air mixtures may be explosive. The minimum ignition temperature reported through a 200 mesh sieve is 380 temperature reported through a 200 mesh sieve is 380
Possibility of Hazardous Reactions	
Hazardous Reactions:	Hazardous polymerization does not occur. No decomposition if stored and applied as directed.
Conditions to Avoid:	Generation of dusts.
Materials to Avoid:	No data available
Hazardous Decomposition Products:	Carbon oxides, sulfur oxides
Other Data:	No decomposition if stored and applied as directed.

Section 11: TOXICOLOGICAL INFORMATION

Acute Oral Toxicity

Acid Modified Petroleum Residuum: LD50: >5,000 mg/kg

Acute Inhalation Toxicity

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Acid Modified Petroleum Residuum:

LC50: > 5.3 mg/l
Exposure Time: 4h
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.

Acute Dermal Toxicity

Acid Modified Petroleum Residuum:

No data available

Skin Irritation

Acid Modified Petroleum Residuum:

No skin irritation

Eye Irritation

Acid Modified Petroleum Residuum:

No eye irritation

Sensitization

Acid Modified Petroleum Residuum:

Did not cause sensitization on laboratory animals.

Repeated Dose Toxicity

Acid Modified Petroleum Residuum:

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

Genotoxicity in Vitro

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Acid Modified Petroleum Residuum: Test Type: Mouse micronucleus assay
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: In vitro tests did not show mutagenic effects
Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: In vitro tests did not show mutagenic effects

Reproductive Toxicity

Acid Modified Petroleum Residuum: 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

Developmental Toxicity

Acid Modified Petroleum Residuum: 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

CMR Effects

Acid Modified Petroleum Residuum: 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.

Crystalline Silica: Carcinogenicity: Positive evidence from human epidemiological studies (inhalation)

Further Information: Chronic health hazard

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Effects

Toxicity to Fish

Acid Modified Petroleum Residuum: LC50: > 240 mg/l
Exposure time: 96 h

Species: *Scophthalmus maximus* (Flatfish, Flounder)
semi-static test Method: OECD Test Guideline 203

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Toxicity to Daphnia and Other Aquatic Invertebrates

Acid Modified Petroleum Residuum: LC50: 380 mg/l
Exposure time: 48 h
Species: Acartia tonsa (Marine Copepod)
Static Test Method: ISO TC147/SC5/WG2

Toxicity to Algae

Acid Modified Petroleum Residuum: EC50: 240 mg/l
Exposure time: 72 h
Species: Skeletonema costatum (Marine Algae)
Static Test Method: ISO 10253

Biodegradability: This material is not expected to be readily biodegradable.

Elimination Information (Persistence and Degradability)

Biocummulation: No data available

Mobility: No data available

Results of PBT Assessment

Acid Modified Petroleum Residuum: Non-classified PBT substance, Non-classified vPvB substance

Additional Ecological Information: This material is not expected to be harmful to aquatic organisms.

Ecotoxicology Assessment

Short-Term (Acute) Aquatic Hazard: This material is not expected to be harmful to aquatic organisms.

Long-Term (Acute) Aquatic Hazard: This material is not expected to be harmful to aquatic organisms.

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.

Product: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated Packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

Section 14: TRANSPORT INFORMATION

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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.

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, Carcinogenicity

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.

SARA 304 Reportable Quantity:

This material does not contain any components with a Section 304 EHS RQ.

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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 I Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations

Pennsylvania Right to Know: Crystalline Silica – 14808-60-7

California Prop. 65 Components: WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov/food.

Crystalline Silica 14808-60-7

Notification Status

Europe REACH: A substance or substances in this product is not registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.

Switzerland CH INV: On the inventory, or in compliance with the inventory.

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: On the inventory, or in compliance with the inventory.

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

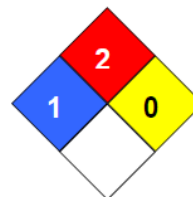
Korea KECl: Korea KECl : A substance(s) in this product was not registered, notified to be registered, or exempted from registration according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.

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Philippines PICCS:	On the inventory, or in compliance with the inventory.
China IECSC:	On the inventory, or in compliance with the inventory.
Taiwan TCSI:	Not in compliance with the inventory.

Section 16: OTHER INFORMATION

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



Disclaimer:

The information contained herein is based on data available to us and is believed to be true and accurate. However, no guarantee or warranty is provided, expressed or implied, by the company or its subsidiaries regarding accuracy of the information, the hazards connected with the use of the material, or the results to be obtained from the use thereof. Since the use of this product is within the exclusive control of the user, we do not assume any responsibility and expressly disclaim any liability for any use of this product. It is the user's responsibility to determine the conditions of safe use, storage, and disposal of the product. Compliance with all applicable federal, provincial, and local regulations remains the responsibility of the user.

Key or Legend to Abbreviations and Acronyms used in the Safety Data Sheet

ACGIH	American Conference or 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 and 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 and Health Administration

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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
>=	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%		

Prepared by: Bri-Chem Supply Ltd.

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