



Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Desco® Deflocculant

Product Use: Base Fluid for Drilling Muds

Synonyms: Drilling Mud Deflocculant

Product Cas No.: Mixture

Company Identification:

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

Product Information:

MSDS Requests: (800) 852-5530
Technical Information: (800) 221-1956

24-Hour Emergency Telephone Numbers

HEALTH: Chevron Phillips Emergency Information Center 866.442.9628 (North America) and 1.832.813.4984 (International)

TRANSPORTATION: North America: CHEMTREC 800.424.9300 or 703.527.3887
ASIA: +1.703.527.3887
EUROPE: BIG .32.14.584545 (phone) or .32.14.583516 (telefax)
SOUTH AMERICA SOS-Cotec Inside Brazil: 0800.111.767
Outside Brazil: 55.19.3467.1600

SECTION 2 COMPOSITION INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	AMOUNT	EINECS	SYM	R-PHRASES
Proprietary	Proprietary	> 84 % weight	NA	NA	NA
Ferrous Sulfate	17375-41-6	< 10 % weight	NA	NA	NA
Chromium Acetate	1066-30-4	< 5 % weight	NA	NA	NA
Crystalline Silica	14808-60-7	< 1 % weight	238-878-4	NA	NA

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation
Chromium Acetate	ACGIH	.5 mg/m ³	NA	NA	as Cr as Cr
Chromium Acetate	CPCHEM	Not Established	NA	NA	NA
Crystalline Silica	ACGIH	.025 mg/m ³	NA	NA	NA
Crystalline Silica	CPCHEM	.05 mg/m ³	NA	NA	Respirable Dust
Crystalline Silica	German MAK	.15 mg/m ³	NA	NA	NA

Revision Number: 5
Revision Date: 01/10/2007

1 of 9

Desco® Deflocculant
MSDS : 59390

Ferrous Sulfate	ACGIH	1 mg/m3	NA	NA	as Fe as Fe
Proprietary	ACGIH	Not Established	NA	NA	NA

Control as Particulate Not Otherwise Classified (PNOC). The ACGIH Guideline* for respirable dust is 3.0 mg/m3 and 10.0 mg/m3 for total dust. The OSHA PEL for respirable dust is 5.0 mg/m3 and 15.0 mg/m3 for total dust.

* This value is for inhalable (total) particulate matter containing no asbestos and < 1.0% crystalline silica.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Fine reddish-brown powder, mild tree bark odor.

- MAY BE HARMFUL OR FATAL IF SWALLOWED
- DUST MAY PRODUCE MECHANICAL IRRITATION TO THE MUCOUS MEMBRANES OF THE EYES, NOSE, THROAT AND UPPER RESPIRATORY TRACT
- CAUSES EYE IRRITATION
- CAUSES SKIN IRRITATION
- SUSPECT CANCER HAZARD - MAY CAUSE CANCER
- MAY CAUSE DAMAGE TO:
 - LUNGS
 - LIVER
 - KIDNEY

IMMEDIATE HEALTH EFFECTS:

Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision. Not expected to cause prolonged or significant eye irritation. Material is dusty and may scratch the surface of the eye.

Skin: Contact with the skin causes irritation. 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: Toxic; may be harmful or fatal if swallowed.

Inhalation: The dust from this material may cause respiratory irritation.

DELAYED OR OTHER HEALTH EFFECTS:

Cancer: Prolonged or repeated exposure to this material may cause cancer.

Target Organs: Repeated inhalation of this material at elevated concentrations may cause damage to the following organ(s) based on animal data: - Liver - Kidney - Lung

See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with running water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get immediate medical attention.

Skin: To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse. Get medical attention if any symptoms develop.

Ingestion: If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give

oxygen. Get medical attention if breathing difficulties continue.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

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

NFPA RATINGS: Health: 2 Flammability: 0 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: NA

Autoignition: NDA

Flammability (Explosive) Limits (% by volume in air): Lower: NA Upper: NA

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

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: Material will not burn unless preheated. Clear fire area of all non-emergency personnel. Only enter confined fire space with full gear, including a positive pressure, NIOSH-approved, self-contained breathing apparatus. Cool surrounding equipment, fire-exposed containers and structures with water. Container areas exposed to direct flame contact should be cooled with large quantities of water (500 gallons water per minute flame impingement exposure) to prevent weakening of container structure. This material will burn although it is not easily ignited.

Combustion Products: No data available.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management: Avoid creating dust clouds. Shovel, sweep up or use industrial vacuum cleaner to pick up. Place in container for proper disposal. Reduce airborne dust and prevent scattering by moistening with water.

Reporting: U.S.A. regulations may require reporting spills of this material that could reach any surface waters. Report spills to local authorities and/or the National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL . REFER TO PRODUCT LABEL OR MANUFACTURERS TECHNICAL BULLETINS FOR THE PROPER USE AND HANDLING OF THIS MATERIAL .

Precautionary Measures: Use caution to avoid creation of dusts and to prevent inhalation of product dust (fines). Avoid contact with product dust. Airborne dust concentrations above 20 mg/l may create a dust explosion hazard. Avoid breathing vapors or fumes which may be released during thermal processing. Do not breathe dust at levels above the recommended exposure limits. Avoid breathing material. Keep container closed. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Discard contaminated clothing and shoes or thoroughly clean before reuse. Do not get in eyes. Do not taste or swallow. Do not breathe dust.

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

General Storage Information: Treat as a solid that can burn. Store away from oxidizing materials, in a cool, dry place with adequate ventilation. Bond and ground transfer equipment. DO NOT USE OR STORE near heat, sparks or open

flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
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. Containers, even those that have been emptied, can contain residues of dusts or solid particulates which may create both health and fire/explosion hazards.

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:

If heated material generates vapor or fumes, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face Protection: Wear eye protection such as safety glasses, chemical goggles, or faceshields if engineering controls or work practices are not adequate to prevent eye contact.

Skin Protection: Wear impervious protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Users should determine acceptable performance characteristics of protective clothing. Consider physical requirements and other substances present when selecting protective clothing. Suggested materials for protective gloves include: Nitrile Rubber

Respiratory Protection: If user operations generate harmful levels of airborne material that is not adequately controlled by ventilation, wear a NIOSH approved respirator that provides adequate protection. Use the following elements for air-purifying respirators: Air-Purifying Respirator for Particulates (HEPA)

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling / Peak	Notation
Chromium Acetate	ACGIH	.5 mg/m ³	NA	NA	as Cr as Cr
Chromium Acetate	CPCHEM	Not Established	NA	NA	NA
Crystalline Silica	ACGIH	.025 mg/m ³	NA	NA	NA
Crystalline Silica	CPCHEM	.05 mg/m ³	NA	NA	Respirable Dust
Crystalline Silica	German MAK	.15 mg/m ³	NA	NA	NA
Ferrous Sulfate	ACGIH	1 mg/m ³	NA	NA	as Fe as Fe
Proprietary	ACGIH	Not Established	NA	NA	NA

Control as Particulate Not Otherwise Classified (PNOC). The ACGIH Guideline* for respirable dust is 3.0 mg/m³ and 10.0 mg/m³ for total dust. The OSHA PEL for respirable dust is 5.0 mg/m³ and 15.0 mg/m³ for total dust.

* This value is for inhalable (total) particulate matter containing no asbestos and < 1.0% crystalline silica.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Revision Number: 5
 Revision Date: 01/10/2007

4 of 9

Desco® Defloculant
 MSDS : 59390

APPEARANCE AND ODOR: Fine reddish-brown powder, mild tree bark odor.
pH: NA
VAPOR PRESSURE: NA
VAPOR DENSITY (AIR=1): NA
BOILING POINT: NA
SOLUBILITY (in water): Appreciable

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.
Conditions to Avoid: No Data Available
Incompatibility With Other Materials: No data available
Hazardous Decomposition Products: No Data.
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS:

Acute Oral Toxicity: Ferrous Sulfate: LD50 / Species not specified / 1.52 g/kg
Acute Dermal Toxicity: LD50 / not known
Acute Inhalation Toxicity: LC50 / not known

Eye Irritation: This material is irritating to the eyes.
Skin Irritation: This material is irritating to the skin.

ADDITIONAL TOXICOLOGY INFORMATION:

The toxicological properties of this product have not been tested or have not been tested completely and its handling or use may be hazardous. EXERCISE DUE CARE.

This product contains CRYSTALLINE SILICA:

Repeated Dose Toxicity: Up to 420 days / inhalation / rat / Doses: 30,000 particles/ml 18 hrs/day 5days/wk / Silicotic nodules

Genetic Toxicity: AMES test = Negative / Recombination Assay = Negative

Carcinogenicity: 2 yrs / inhalation / rat / Dose: 1 mg/m³ / primary lung tumors in control (3) and treated (18); 150, 300 or 570 days / inhalation / mouse / Doses: 1475 ug/m³ for 150 days, 1800 ug/m³ for 300 days or 1950 ug/m³ for 570 days 8 hrs/day 5days/wk / pulmonary adenomas found in both control (7) and treated (9)

Other: International Agency for Research on Cancer (IARC) classifies crystalline silica as a human carcinogen

Long-term exposure to high dust concentrations may cause non-debilitating lung changes.

This product contains CHROMIUM ACETATE:

REPEATED DOSE TOXICITY: Lifetime / oral / mouse / Dose: 5 ppm in drinking water / decrease longevity in male mice

GENETIC TOXICITY: Sister Chromatid Exchange = Negative / Chromosomal aberrations = Positive

CARCINOGENICITY: Lifetime / oral / rat / Dose: 5 mg/L in drinking water / no increase incidence of tumors

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.

Chromium Acetate - 96 hour(s) / IC50 / rainbow trout (*Salmo gairdneri*) / 59 mg/l
 Ferrous Sulfate - 48 hour(s) / LC50 / mysid shrimp (*Mysidopsis bahia*) / 56 ppm

ENVIRONMENTAL FATE:

The environmental fate of this material is not available.

SECTION 13 DISPOSAL CONSIDERATIONS

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.

SECTION 14 TRANSPORT INFORMATION

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

Shipping Descriptions per regulatory authority.

US DOT

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION

ICAO / IATA

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION

IMO / IMDG

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION

RID / ADR

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION

Additional Information: This material is regulated when shipped in bulk quantities (>= 119 gallons, 882 mass net) only.

SECTION 15 REGULATORY INFORMATION

SARA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects:	YES
2. Delayed (Chronic) Health Effects:	YES
3. Fire Hazard:	NO
4. Sudden Release of Pressure Hazard:	NO
5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01 = CA Prop 65	17 = FDA 178	33 = RCRA Waste Appendix VIII
02 = LA RTK	18 = FDA 179	34 = RCRA Waste D-List
03 = MA RTK	19 = FDA 180	35 = RCRA Waste P-List
04 = MN Hazardous Substance	20 = FDA 181	36 = RCRA Waste U-List

Revision Number: 5
 Revision Date: 01/10/2007

6 of 9

Desco® Deflocculant
 MSDS : 59390

05 = NJ RTK	21 = FDA 182	37 = SARA Section 311/312
06 = PA RTK	22 = FDA 184	38 = SARA Section 313
07 = CAA Section 112 HAPs	23 = FDA 186	39 = TSCA 12 (b)
08 = CWA Section 307	24 = FDA 189	40 = TSCA Section 4
09 = CWA Section 311	25 = IARC Group 1	41 = TSCA Section 5(a)
10 = DOT Marine Pollutant	26 = IARC Group 2A	42 = TSCA Section 8(a) CAIR
11 = FDA 172	27 = IARC Group 2B	43 = TSCA Section 8(a) PAIR
12 = FDA 173	28 = IARC Group 3	44 = TSCA Section 8(d)
13 = FDA 174	29 = IARC Group 4	45 = WHIMS - IDL
14 = FDA 175	30 = NTP Carcinogen	46 = Germany D TAL
15 = FDA 176	31 = OSHA Carcinogen	47 = Germany WKG
16 = FDA 177	32 = OSHA Highly Hazardous	48 = DEA List 1
		49 = DEA List 2

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

Ferrous Sulfate	3, 4, 5, 6, 9, 45
Chromium Acetate	3, 4, 5, 6, 9, 34, 38, 45, 46
Crystalline Silica	1, 3, 4, 5, 6, 25, 30, 45

GERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Chromium Acetate	1000 lbs	None	20000 lbs
Ferrous Sulfate	1000 lbs	None	16666 lbs

WHMIS CLASSIFICATION:

Class D, Division 1, Subdivision B: Toxic Material
 Acute Lethality
 Class D, Division 2, Subdivision A: Very Toxic Material
 Carcinogenicity
 Chronic Toxic Effects
 Class D, Division 2, Subdivision B: Toxic Material
 Chronic Toxic Effects
 Skin or Eye Irritation

CHEMICAL INVENTORY LISTINGS:

AUSTRALIA: This material contains components that require notification before sale or importation into Australia.
 CANADA: All the components of this material are on the Canadian Domestic Substances List (DSL) or are exempt from notification.
 PEOPLE'S REPUBLIC OF CHINA: All the components of this product are listed on the draft Inventory of Existing Chemical Substances in China.
 EUROPEAN UNION: All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.
 JAPAN: This material contains components that require notification before sale or importation into Japan.
 KOREA: All the components of this product are on the Existing Chemicals List (ECL) in Korea.
 PHILIPPINES: This material contains components that require notification before sale or importation into the Philippines.
 UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

Revision Number: 5
 Revision Date: 01/10/2007

7 of 9

Desco® Deflocculant
 MSDS : 59390

EU RISK AND SAFETY PHRASES:

R22: Harmful if swallowed.

R25: Toxic if swallowed.

R45: May cause cancer.

R36/38: Irritating to eyes and skin.

R48/23: Toxic: danger of serious damage to health by prolonged exposure through inhalation.

S22: Do not breathe dust.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S38: In case of insufficient ventilation, wear suitable respiratory equipment.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S53: Avoid exposure - obtain special instructions before use.

S24/25: Avoid contact with skin and eyes.

S36/37: Wear suitable protective clothing and gloves.

EU Symbols: T - Toxic

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 0 Reactivity: 0 Special: NA

(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).

REVISION STATEMENT: The following sections have been updated: 1

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	OSHA	- Occupational Safety & Health Administration
NIOSH	- National Institute for Occupational Safety & Health	NFPA	- National Fire Protection Agency
WHMIS	- Workplace Hazardous Materials Information System	IARC	- Intl. Agency for Research on Cancer
EINECS	- European Inventory of existing Commercial Chemical Substances	RCRA	- Resource Conservation Recovery Act
SARA	- Superfund Amendments and Reauthorization Act.	TSCA	- Toxic Substance Control Act
EC50	- Effective Concentration	LC50	- Lethal Concentration
LD50	- Lethal Dose	CAS	- Chemical Abstract Service
NDA	- No Data Available	NA	- Not Applicable
<=	- Less Than or Equal To	>=	- Greater Than or Equal To
CNS	- Central Nervous System	MAK	- Germany Maximum Concentration Values

This data sheet is prepared according to the latest adaptation of the EEC Guideline 67/548.
 This data sheet is prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 This data sheet is prepared according to the ANSI MSDS Standard (Z400.1).
 This data sheet was prepared by EHS Product Stewardship Group, Chevron Phillips Chemical Company LP, 10001 Six Pines Drive, The Woodlands, TX 77380.

Revision Number: 5
 Revision Date: 01/10/2007

8 of 9

Desco® Deflocculant
 MSDS : 59390

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.