

MATERIAL SAFETY DATA SHEET



MILGEL®

Drilling Fluids

1. Product and Company Identification

Material name MILGEL®
Chemical name Bentonite
Applications VISCOSIFIER
Supplier Baker Hughes Drilling Fluids
2001 Rankin Rd.
Houston, TX 77073
Emergency telephone number 713-439-8900

2. Composition / Information on Ingredients

Components	CAS #	Percent
CRYSTALLINE SILICA, QUARTZ	14808-60-7	< 6
Non-hazardous and other components below reportable levels		> 90

3. Hazards Identification

Emergency overview Harmful in contact with eyes. Prolonged exposure may cause chronic effects. Contact with this material can cause irritation to the skin, eyes and mucous membranes.

OSHA regulatory status However exposure limits detailed in Section 8 should be observed.

Potential health effects

Eyes Dust or powder may irritate eye tissue. Eye contact may result in corneal injury.

Skin Health injuries are not known or expected under normal use. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

Inhalation Inhalation of dusts may cause respiratory irritation.

Ingestion Health injuries are not known or expected under normal use.

Target organs Eyes. Lungs. Respiratory system.

Chronic effects Chronic lung disease (silicosis) and/or lung cancer may result from prolonged/repeated breathing of the dust of this material. Shortness of breath.

Signs and symptoms Cough. Discomfort in the chest. Shortness of breath. Conjunctivitis. Corneal damage. Chronic lung disease (silicosis) and/or lung cancer may result from prolonged/repeated breathing of the dust of this material.

4. First Aid Measures

First aid procedures

Eye contact Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Skin contact Wash off skin with soap and water. Get medical attention if irritation develops or persists.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Call a physician if symptoms develop or persist.

Ingestion If swallowed, rinse mouth with water (only if the person is conscious). If ingestion of a large amount does occur, seek medical attention.

Notes to physician Symptoms may be delayed.

General advice Call a physician if symptoms develop or persist. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible).

5. Fire Fighting Measures

Flammable properties Dusts at sufficient concentrations can form explosive mixtures with air.

Hazardous combustion products Product is not considered combustible.

Extinguishing media

Suitable extinguishing media Use any media suitable for the surrounding fires.

Protection of firefighters

Protective equipment for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus.

6. Accidental Release Measures

Personal precautions	Surfaces may become slippery after spillage. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Evacuation procedures	Keep unnecessary personnel away. Stay upwind.
Environmental precautions	Do not flush into surface water or sanitary sewer system.
Methods for containment	Stop the flow of material, if this is without risk. Contain the discharged material.
Methods for cleaning up	Vacuum or sweep up material and place in a disposal container. Avoid the generation of dusts during clean-up. Do not flush with water. Forms smooth, slippery surfaces on floors, posing an accident risk.

7. Handling and Storage

Handling	Wear personal protective equipment. Minimize dust generation and accumulation. In case of insufficient ventilation, wear suitable respiratory equipment.
Storage	Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure Controls / Personal Protection

Exposure guidelines

ACGIH - Threshold Limits Values - Time Weighted Averages (TLV-TWA)

CRYSTALLINE SILICA, 14808-60-7 0.05 Mg/m3 TWA (respirable fraction)
QUARTZ

ACGIH - Threshold Limits Values - TLV Basis - Critical Effects

CRYSTALLINE SILICA, 14808-60-7 silicosis; lung function; lung fibrosis; cancer
QUARTZ

Engineering controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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Personal protective equipment

Eye / face protection	Wear dust goggles.
Skin protection	Use of protective coveralls and long sleeves is recommended. Use of impervious boots is recommended.
Hand protection	Rubber or plastic gloves.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General hygiene considerations	Do not breathe dust. Wash hands before breaks and immediately after handling the product.

9. Physical and Chemical Properties

Appearance / Color / Form	Powder. Beige. Solid.
Odor	Odourless.
Clarity	Not available
Odor threshold	Not available
Physical state	Solid
pH	9.5 (10% aq. solution)
Melting point	2930 °F (1610 °C) estimated
Freezing point	Not available
Boiling point	4046 °F (2230 °C) estimated
Flash point	Non-flammable
Evaporation rate	Not available
Flammability limits in air, lower, % by volume	Not available
Flammability limits in air, upper, % by volume	Not available
Vapor pressure	Not available
Vapor density	Not available
Specific gravity	2.6
Relative density	Not available

Solubility	Insoluble in water.
Octanol/H2O coeff	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Bulk density	2700 kg/m3 @ 20 Deg C

10. Chemical Stability and Reativity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	None known.
Incompatible materials	None known.
Hazardous decomposition products	None known.
Possibility of hazardous reactions	Will not occur.

11. Toxicological Information

Component analysis - LD50

Toxicology Data - Selected LD50s and LC50s

CRYSTALLINE SILICA, QUARTZ	14808-60-7	Oral LD50 Rat: 500 mg/kg
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Chronic effects	Chronic lung disease (silicosis) and/or lung cancer may result from prolonged/repeated breathing of the dust of this material.
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Carcinogenicity

ACGIH - Threshold Limits Values - Carcinogens

CRYSTALLINE SILICA, QUARTZ	14808-60-7	A2 - Suspected Human Carcinogen
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NTP (National Toxicology Program) - Report on Carcinogens - Known Carcinogens

CRYSTALLINE SILICA, QUARTZ	14808-60-7	Known Carcinogen
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12. Ecological Information

Ecotoxicity	This material is not expected to be harmful to aquatic life.
Persistence / degradability	The methods for determining the biological degradability are not applicable to inorganic substances.
Bioaccumulation / accumulation	Not expected to bioaccumulate.
Mobility in environmental media	This material is insoluble in water and will sink in the marine environment.

13. Disposal Considerations

Disposal instructions	This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Can be landfilled, when in compliance with local regulations.
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14. Transport Information

Department of Transportation (DOT) Requirements

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations	All components are on the U.S. EPA TSCA Inventory List.
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OSHA Process Safety Standard: This material is not known to be hazardous by the OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

CERCLA/SARA Hazardous Substances - Not applicable.

NTP (National Toxicology Program) - Report on Carcinogens - Known Carcinogens

CRYSTALLINE SILICA, QUARTZ	14808-60-7	Known Carcinogen
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Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical No

CERCLA (Superfund) reportable quantity None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

Food and Drug Administration (FDA) Total food additive
Indirect food additive
GRAS food additive

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (CCS)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Japanese Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Korean Inventory of Chemicals (KICS)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

International regulations The product does not need to be labelled in accordance with EC directives or respective national laws.

IARC - Group 1 (Carcinogenic to Humans)

CRYSTALLINE SILICA, 14808-60-7 Monograph 68, 1997 (Listed under Crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources)
QUARTZ

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

California - Proposition 65 - Carcinogens List

CRYSTALLINE SILICA, 14808-60-7 carcinogen, initial date 10/1/88 (airborne particles of respirable size)
QUARTZ

Massachusetts - Right To Know List

CRYSTALLINE SILICA, 14808-60-7 Carcinogen; Extraordinarily hazardous
QUARTZ

New Jersey - Right to Know Hazardous Substance List

CRYSTALLINE SILICA, 14808-60-7 sn 1660
QUARTZ

Pennsylvania - RTK (Right to Know) List

CRYSTALLINE SILICA, 14808-60-7 Present (includes dust)
QUARTZ

16. Other Information

HMIS ratings Health: 1*
Flammability: 0
Physical hazard: 0
Personal protection: E

NFPA ratings Health: 1
Flammability: 0
Instability: 0

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 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.

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MSDS sections updated

Product and Company Identification: Alternate Trade Names
Composition / Information on Ingredients: Component Summary
Hazards Identification: US Hazardous
Fire Fighting Measures: Fire & Explosion Properties
Physical & Chemical Properties: Physical & Chemical Properties
Regulatory Information: Canada
Regulatory Information: US federal regulations