Safety Data Sheet – Barite

Section 1: Product and Company Identification

Product Identifier: Barite
Product Names: Barite, Baryte, Bar

Product uses: various industrial uses

Manufacturer:
Industrial Mineral Company
7268 Frasinetti Road
Sacramento, California 95828

Emergency Telephone Number: 916-383-2811
Telephone Number for Information: 916-383-2811

Section 2: Hazards Identification

Carcinogen

Irritant (skin and eye)
Skin Sensitizer
Reparatory Track Irritant

OSHA/HCS status: This naturally occurring clay is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Classification of the substance of mixture: OSHA –Carcinogenicity (inhalation) - Category 1A and Specific organ toxicity (Repeated Exposure) (Respiratory tract through inhalation) – Category 1
Exposure limits for Crystalline Silica: The current American Conference of Government Industrial Hygienist Threshold limit value for crystalline silica is: 0.1 mg/m^3
Signal Word: Danger
Hazard Statement Cancer Hazard. Contains quartz (crystalline silica) which may cause cancer. Risk of cancer depends upon duration and level of exposure to the dust. Not an acute hazard. Prolonged inhalation of dust may cause lung injury. Inhalation of high concentrations of dust may cause mechanical irritation and discomfort of the respiratory tract. Repeated exposure may have chronic effects. Can cause skin, respiratory, and eye irritation.
Precautionary Statement: Wear protective gloves, eye, and respiratory protection. Avoid breathing dust.

Section 3: Composition Information

Natural Occurring mineral, exact chemical composition varies.

Chemical Name	Common Name	CAS Number	%
Quartz (Silica)	SiO_2	14808-60-7	10-12
Barite	$BaSO_4$	13462-86-7	80-84
Mica/Illite	$(K,Na,Ca)(Al,Mg,Fe)_2(Si,Al)_4O_{10}(OH,F)_2$	12001-26-2	<6
Calcite	$CaCO_3$	13397-26-7	<2

Section 4: First-Aid Measures

Eye Contact: If eye contact occurs, rinse immediately with plenty of water. If irritation persists, seek medical attention
Skin Contact: Wash thoroughly with water. If irritation persists, seek medical attention
Inhalation: Move victim to fresh air in well ventilated area. If coughing or irritation persists, seek medical attention
Ingestion: Consult physician and/or obtain competent medical assistance

Section 5 Fire Fighting Measures

General Fire Hazards: Not flammable
Extinguishing Media: Use appropriate extinguishing media for surrounding fire
Special Fire Fighting Procedure: None

Section 6: Accidental Release Measures

Clean-up Methods: When dust is generated it may over expose cleanup personnel to dust. Using respirators or wetting the material is recommended. When dry sweeping use NIOSH approved respirators when dust levels exceed exposure limits
Personal Precautions and Personal Protective Equipment: Wear appropriate protective equipment and clothing during clean-up. If dusty conditions exist use approved respirators.
Environmental Precautions: Material is a natural mineral product and will not cause adverse effects to the water system other than turbidity from suspended particles.

Section 7: Handling and Storage

Handling Procedures: Wear the appropriate eye protection and avoid dust contact with eyes. Minimize dust generation and accumulation. Wear the appropriate respiratory protection when in poorly ventilated areas. Use good industrial hygiene practices.

Section 8: Exposure Controls/Personal Protection

Airborne Exposure Limits:

Silica component limit
OSHA PEL: TWA 10 mg/m^3 (respirable)
OSHA PEL : TWA 30 mg/m^3 (total dust)
CAL OSHA PEL: TWA 0.1 mg/m^3 (respirable)
CAL OSHA PEL: TWA 0.3 mg/m^3 (total dust)

Engineering Measures: Use local exhaust ventilation to control exposure below applicable limits
Personal Protective Equipment (PPE):
Respiratory: Avoid actions that cause dust exposure to occur. Use local or general ventilation to control exposures below applicable exposure limits. NIOSH or MSHA approved particulate filter respirators should be used. Respirator and/or filter cartridge selection should be based on the ANSI Standard Z88.2.

Eyes: When working around activities where dust can contact the eyes, wear safety glasses or goggles to avoid eye irritation or injury. Wearing contacts without sealing goggles is not recommended.
Skin and Body: Protective Clothing is not essential

Section 9: Physical and Chemical Properties

Appearance: Tan to grey **Physical state**: Powder **pH**: 8 **Melting/Freezing Point**: no data available **Evaporation Rate**: NA **Vapor Pressure (mm HG)**: 0 (approximately) **Relative density**: NA **Solubility in water at 100 C:** 0 (approximately) **Decomposition temperature:** no data available **Viscosity:** NA	**Odor:** none **Odor threshold:** No data Available **Flashpoint:** NA **Boiling Point:** NA **Flammability:** Not Flammable **Vapor Density**: NA **Specific Gravity**: 4.1 **Partition coefficient**: No data available **Auto-ignition temperature**: NA

Section 10: Stability and Reactivity

Reactivity: No dangerous reactions are known under normal conditions of use
Chemical Stability: Stable
Possibility of Hazardous Reactions and Conditions to Avoid: None known
Incompatibility: None Known

Section 11: Toxicological Information

Possible Health Effects:
Target Organs: Skin, Eyes, and Respiratory system
Exposure Routes: Inhalation, skin or eye contact
Symptoms:
Short Term: Shortness of breath and/or coughing associated with dust inhalation.
Long Term Exposure (Chronic): Steady and prolonged exposure to dust concentrations high than LTV without approved respirator could cause silicosis, a chronic disease of the lungs marked by acute fibrosis, may cause cancer based on animal data.
Effects of Silicosis
Bronchitis/chronic obstructive Pulmonary Disorder
Increased susceptibility to Tuberculosis
Scleroderma
Possible Renal
Symptoms of Silicosis
Shortness of breath, fever fatigue, loss of appetite, chest pain, dry non-productive cough, respiratory failure, death.

OSHA, IARC, and NTP Carcinogen Classifications				
Chemicals with recognized Carcinogen Potential	CAS#	OSHA	IARC	NTP

Quartz (Crystalline Silica)	14808-60-7	Yes	Yes – Group 1	Yes

Section 12: Ecological Information

Eco toxicity: None Known
Biochemical oxygen demand (BOD5): None known
Chemical oxygen demand (COD): None known
Products of Biodegradation: None known
Toxicity of the products of biodegradation: None known
Bioaccumulation Potential: None known
Potential to move from soil to groundwater: None Know
Other adverse effects: None known

Section 13: Disposal Considerations

Personal Protection: Refer to section 8 for proper PPE when disposing of waste material
Appropriate disposal containers: No special requirements
Appropriate disposal methods: Disposal of this product should comply with the requirements of environmental protection and waste disposal legislation and any regional or local authority requirements.
Physical and chemical properties that may affect disposal: Dust should be minimized in disposal by either transporting in seal containers or wetting dust before transport
Sewage disposal: do not dispose of into sewage systems, material will settle out of water and clog pipes.
Special precautions for landfills or incineration activities: None

Section 14: Transport Information

Regulatory Information	UN Number	UN Proper Shipping Name	Transport Hazard Class	Packing Group Number	Bulk Transport Guidance	Special Precautions
DOT Classification	Not Regulated	-	-	-	-	-
TDG Classification	Not Regulated	-	-	-	-	-
ADR/RID Class	Not Regulated	-	-	-	-	-
IMDG Class	Not Regulated	-	-	-	-	-
IATA-DGR Class	Not Regulated	-	-	-	-	-

Section 15 Regulatory Information

TSCA – Toxic Substances Control Act – EPA Quartz and other chemicals are listed in the TSCA Chemical Substance Inventory

California Prop. 65 WARNING: This product contains a chemical known to the State of California to cause cancer. (Prop. 65 – California Health and Safety Code Section 2549 Et Seq)
SARA/Title III (Emergency Planning & Community Right-to-Know Act This mixture contains no substances at or above the reporting threshold under section 313, based on available data.

Section 16: Other Information

Definitions
ASTM –American System of Testing and Materials
OSHA – Occupational Safety & Health Administration
IARC – International Agency for Research on Cancer
NTP – National Toxicogmail.com
HCS – Hazardous Communication Standard
CAS – Chemical Abstract Service
ACGIH – American Conference of Governmental Industrial Hygienists
CAL-OSHA – California Occupational Safety & Health Administration
OSHA PEL – OSHA Permissible Exposure Levels
OSHA STEL - spot exposure for a duration of 15 minutes, which cannot be repeated more than 4 times per day with at least 60 minutes between exposure periods.
TLV – Threshold Limit Value
TWA – Time Weighted Average
TLV-TWA –Time weighted average Threshold limit value
TLV-STEL – Shot-term exposure limit Threshold limit value
TLV-C – Ceiling Limit – absolute limit that should not be exceeded at any time

Revisions: Existing MSDS revised to new GHS format. Revision Date 08/31/2015

The information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so, nothing here in is to be construed as recommending any practice or product in violation of any patent, law, or regulation. It is the user's responsibility to determine the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material we supply.

SDS no. PID14411
Version 5
Revision date 12/Jul/2016
Supersedes date 20/Oct/2015

Safety Data Sheet
FED WATE*

1. Identification

1.1 Product identifier

Product name FED WATE*

Product code PID14411

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Drilling fluid additive. Weighting agent.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
FEDERAL
Wholesale Drilling Mud
P.O. Box 42842
Houston, TX 77242
Telephone: 1 281-561-1511

E-mail address sdsmi@slb.com

Prepared by
Global Regulatory Compliance - Chemicals (GRC - Chemicals)

1.4 Emergency Telephone Number

Emergency telephone (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

GHS - Classification

Health hazards

Carcinogenicity	Category 1A

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
DANGER

Hazard statements
H350 - May cause cancer

Precautionary statements
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P281 - Use personal protective equipment as required
P308 + P313 - IF exposed or concerned: Get medical advice/ attention
P501 - Dispose of contents/ container to an approved waste disposal plant

Unknown acute toxicity 2.5% of the mixture consists of ingredient(s) of unknown toxicity.

3. Composition/information on Ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	CAS-No	Weight % - range
Barite	7727-43-7	60 - 100
Silica, crystalline, quartz	14808-60-7	1 - 5
Mica	12001-26-2	1 - 5

Comments
The exact percentage (concentration) of composition has been withheld as a trade secret

4. First aid measures

4.1 First-Aid Measures

Inhalation Move to fresh air. If breathing is difficult, (trained personnel should) give oxygen. Obtain medical attention.

Ingestion Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur. Call a physician or Poison Control Centre immediately.

Skin contact Wash skin thoroughly with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

Eye contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician SYMPTOMS MAY BE DELAYED
Keep victim under observation

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Silicon oxide.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear suitable protective equipment. Evacuate personnel to safe areas. Prevent further leakage or spillage if safe to do so. Avoid dust formation. Do not breathe dust. Avoid contact with the skin and the eyes.

6.2 Environmental precautions

Do not allow material to contaminate ground water system.

Environmental exposure controls
No information available.

6.3 Methods and materials for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Avoid generating or breathing dust. Sweep up and shovel into suitable containers for disposal.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust; if exposed to high dust concentration, leave area immediately. Avoid contact with skin, eyes and clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Protect from moisture Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls/personal protection

8.1 Control parameters

Component Information

Component	ACGIH TLV	OSHA PEL
Barite	10 mg/m³	15 mg/m³ (total); 5 mg/m³ (resp)
Silica, crystalline, quartz	0.025 mg/m³	see Table Z-3
Mica	3 mg/m³ (resp)	20 mppcf (<1% crystalline silica). See Table Z-3.

Silica, crystalline, quartz
OSHA - Final PELs - Table Z-3 Mineral Dusts
(30)/(%SiO2 + 2) mg/m³ TWA, total dust; (250)/(%SiO2 + 5) mppcf TWA, respirable fraction; (10)/(%SiO2 + 2) mg/m³ TWA, respirable fraction
Mica
OSHA - Final PELs - Table Z-3 Mineral Dusts
20 mppcf TWA (<1% Crystalline silica)

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye protection Use tight-fitting safety goggles, if not available use safety glasses with side-shields.

Hand protection Neoprene, Nitrile.

Respiratory protection All respiratory protection equipment should be used within a comprehensive respiratory protection program that meets the requirements of 29 CFR 1910.134 (U.S. OSHA Respiratory Protection Standard) or local equivalent.

Skin and body protection Wear suitable protective clothing and gloves, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Opaque
Color	Tan - Gray
Odor	Odorless
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution		
Melting/freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	4.1	
Bulk density	No information available	
Water solubility	Negligible	
Solubility in other solvents	Insoluble	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Log Pow	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

10. Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture. Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

None known.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Repeated or prolonged inhalation of crystalline silica dust can cause delayed lung injury, and other diseases, including silicosis and lung cancer.

Eye contact Dust contact with the eyes can lead to mechanical irritation.

Skin contact Repeated exposure may cause skin dryness or cracking.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Barite	No data available	No data available	No data available
Silica, crystalline, quartz	= 500 mg/kg (Rat)	No data available	No data available
Mica	No data available	No data available	No data available

Component	IARC Group 1 or 2	ACGIH - Carcinogens	OSHA listed carcinogens	NTP
Barite	No data available	No data available	No data available	No data available
Silica, crystalline, quartz	Group 1; Monograph 100C [2012] Group 1; Monograph 68 [1997] Monograph 100C [2012] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources); Monograph 68 [1997]	A2 Suspected Human Carcinogen	Present	Known Human Carcinogen
Mica	No data available	No data available	No data available	No data available

Sensitization Not classified.

Mutagenic effects No evidence of mutagenic properties.

Carcinogenicity Contains a known or suspected carcinogen. Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity No evidence of toxicity to reproduction.

Developmental toxicity Not known to cause birth defects or have a deleterious effect on a developing fetus.

Routes of exposure Skin contact. Inhalation. Eye contact.

Routes of entry Inhalation.

Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	Not Applicable.

12. Ecological information

12.1 Toxicity

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Barite	No information available	No information available	No information available
Silica, crystalline, quartz	No information available	No information available	No information available
Mica	No information available	No information available	No information available

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Disposal Method	Disposal should be made in accordance with federal, state and local regulations.
Contaminated packaging	Do not re-use empty containers. Dispose of in accordance with local regulations.

14. Transport information

14.1 UN Number

UN No. (DOT)	Not regulated
UN No. (TDG)	Not regulated
UN/ID No. (ADR/RID/ADN/ADG)	Not regulated
UN No. (IMDG)	Not regulated
UN No. (ICAO)	Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

DOT Hazard class	Not regulated
TDG Hazard class	Not regulated
ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

DOT Packing group	Not regulated
TDG Packing group	Not regulated
ADR/RID/ADN/ADG Packing group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard

Marine pollutant	No

14.6 Special precautions
Not Applicable

15. Regulatory information

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies.
European Union (EINECS and ELINCS)	Does not Comply
Philippines (PICCS)	Complies
Japan (ENCS)	Does not Comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

U.S. Federal and State Regulations

SARA 311/312 Hazard Categories
Delayed (chronic) health hazard.

Component	SARA 302 / TPQs	SARA 313	CERCLA RQ
Barite	N/A	N/A	N/A
Silica, crystalline, quartz	N/A	N/A	N/A
Mica	N/A	N/A	N/A

State Comments
Proposition 65: This product contains chemical(s) considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 to cause cancer and/or reproductive toxicity. See table under U.S. Federal and State Regulations for the specific chemicals.

16. Other information

Supersedes date 20/Oct/2015

Revision date 12/Jul/2016

Version 5

The following sections have been revised: 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING 3. Composition/information on Ingredients 8. EXPOSURE CONTROLS / PERSONAL PROTECTION 11. Toxicological information Section 16: Other information.

HMIS classification

Health	1*
Flammability	0
Physical hazard	0
PPE	E

N/A - Not Applicable, N/D - Not Determined.

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