

# SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0  
Creation Date: Apr. 11, 2019  
Revision Date: Apr. 11, 2019

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## 1. Identification

### 1.1 GHS Product identifier

Product name Bentonite

### 1.2 Other means of identification

Product number -  
Other names Silicon dioxide;Quartz,Sand,white quartz;Silicon Oxide

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses Drilling fluid additive  
Uses advised against no data available

### 1.4 Supplier's details

Company Yanfei Petroleum Service Limited  
Address City Pyang, Province Henan, China  
Telephone +86-393-6612277  
Fax +86-393-6612277

### 1.5 Emergency phone number

Emergency phone number +86-393-6612277  
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## 2. Hazard identification

### 2.1 Classification of the substance or mixture

Not classified.

### 2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.  
Signal word No signal word  
Hazard statement(s) none  
Precautionary statement(s)  
Prevention none  
Response none  
Storage none  
Disposal none

### 2.3 Other hazards which do not result in classification

### 3. Composition/information on ingredients

#### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Quartz (SiO <sub>2</sub> )	Crystalline silica, quartz	14808-60-7	238-878-4	2%-15%
Cristobalite	Crystalline silica, cristobalite	14464-46-1	238-455-4	2%-12%
Tridymite	Crystalline silica, tridymite	15468-32-3	239-487-1	< 1.5%

### 4. First-aid measures

#### 4.1 Description of necessary first-aid measures

##### General advice

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

##### If inhaled

Fresh air, rest.

##### Following skin contact

Rinse and then wash skin with water and soap.

##### Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

##### Following ingestion

Rinse mouth.

#### 4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin and/or eye contact Symptoms: Irritation eyes, pneumoconiosis Target Organs: Eyes, respiratory system (NIOSH, 2016)

#### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

/SRP:/ Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool ... . Cover skin burns with dry sterile dressings after decontamination ... . /Poison A and B/

### 5. Fire-fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

In case of fire in the surroundings: all extinguishing agents allowed.

#### 5.2 Specific hazards arising from the chemical

no data available

#### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 6. Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

## 6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

## 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## 7. Handling and storage

### 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Avoid dusty atmosphere. /Cab-O-Sil\*/

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## 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

Component	Crystalline silica, quartz			
	CAS No. 14808-60-7			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Australia		0,1 (1)		
Austria		0,15 respirable aerosol		
Belgium		0,1		
Canada - Ontario		0,1 (1)		
Canada - Québec		0,1		
Denmark		0,3 inhalable aerosol		0,6 inhalable aerosol
		0,1 respirable aerosol		0,2 respirable aerosol
Finland		0,05 (1)		
France		0,1 respirable aerosol		
Hungary		0,15 respirable aerosol		
Ireland		0,1 (1)		
New Zealand		0,2 (1)		
People's Republic of China		1 (1) (2)		
		0,7 (1) (3)		
		0,5 (1) (4)		
Singapore		0,1 respirable aerosol		
South Korea		0,05		
Spain		0,1 (1)		
Sweden		0,1 respirable aerosol		

<b>Component</b>	Crystalline silica, quartz		
<b>CAS No.</b>	14808-60-7		
<b>Switzerland</b>		0,15 respirable aerosol	
<b>The Netherlands</b>		0,075 respirable dust	
<b>USA - NIOSH</b>		0,05	
<b>USA - OSHA</b>		30/(%silica+2) total dust	
		10/(%silica+2) respirable dust	
	<b>Remarks</b>		
<b>Australia</b>	(1) Respirable fraction		
<b>Canada - Ontario</b>	(1) Respirable aerosol		
<b>Finland</b>	(1) Respirable fraction		
<b>France</b>	Bold type: Restrictive statutory limit values		
<b>Ireland</b>	(1) Respirable fraction		
<b>New Zealand</b>	(1) Respirable aerosol		
<b>People's Republic of China</b>	(1) Inhalable fraction (2) 10%		
<b>Spain</b>	(1) Respirable fraction		

<b>Component</b>	Crystalline silica, cristobalite			
<b>CAS No.</b>	14464-46-1			
	<b>Limit value - Eight hours</b>		<b>Limit value - Short term</b>	
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>
<b>Finland</b>		0,05 (1)		
	<b>Remarks</b>			
<b>Finland</b>	(1) Respirable fraction			

<b>Component</b>	Crystalline silica, tridymite			
<b>CAS No.</b>	15468-32-3			
	<b>Limit value - Eight hours</b>		<b>Limit value - Short term</b>	
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>
<b>Australia</b>		0,1 (1)		
<b>Austria</b>		0,15 respirable aerosol		
<b>Belgium</b>		0,05		
<b>Canada - Québec</b>		0,05		
<b>Denmark</b>		0,15 inhalable aerosol		0,3 inhalable aerosol
		0,05 respirable aerosol		0,1 respirable aerosol
<b>Finland</b>		0,05 (1)		
<b>France</b>		0,05 respirable aerosol		
<b>Hungary</b>		0,15 respirable aerosol		
<b>Ireland</b>		0,1 (1)		
<b>New Zealand</b>		0,1 (1)		
<b>Singapore</b>		0,05 respirable aerosol		
<b>South Korea</b>		0,05		
<b>Sweden</b>		0,05 respirable aerosol		
<b>Switzerland</b>		0,15 respirable aerosol		
<b>The Netherlands</b>		0,075 respirable dust		
<b>USA - NIOSH</b>		0,05		
<b>USA - OSHA</b>		0,5(30/(%silica+2)) inhalable dust		

<b>Component</b>	Crystalline silica, tridymite		
<b>CAS No.</b>	15468-32-3		
		0,5(10/(%silica+2)) respirable dust	
	<b>Remarks</b>		
<b>Australia</b>	(1) Respirable fraction		
<b>Finland</b>	(1) Respirable fraction		
<b>France</b>	Bold type: Restrictive statutory limit values		
<b>Ireland</b>	(1) Respirable fraction		
<b>New Zealand</b>	(1) Inhalable aerosol		

## 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

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## 9. Physical and chemical properties

<b>Physical state</b>	Solid.
<b>Colour</b>	Amorphous powder
<b>Odour</b>	Odorless
<b>Melting point/ freezing point</b>	1610°C
<b>Boiling point or initial boiling point and boiling range</b>	2230°C
<b>Flammability</b>	Noncombustible Solid
<b>Lower and upper explosion limit / flammability limit</b>	no data available
<b>Flash point</b>	no data available
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Insoluble (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	0 mm Hg (approx) (NIOSH, 2016)
<b>Density and/or relative density</b>	2.2
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## 10. Stability and reactivity

### 10.1 Reactivity

Reacts with strong oxidants. This generates fire and explosion hazard.  
Reacts violently with strong oxidants. This generates fire and explosion hazard.  
Reacts with strong oxidants. This generates fire and explosion hazard.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

Heating the material at high temperatures results in the formation of crystalline silica (see ICSC 0809 Cristobalite). SILICA, AMORPHOUS is a non-combustible solid. Generally unreactive chemically. Incompatible with fluorine, oxygen difluoride, chlorine trifluoride. Soluble in molten alkalis and reacts with most metallic oxides at high temperature.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Fluoride, oxygen difluoride, chlorine trifluoride.

### 10.6 Hazardous decomposition products

no data available

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## 11. Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral >22,500 mg/kg
- Inhalation: no data available
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

EPA: Not evaluated. IARC: Carcinogenic to humans . NTP: Known to be a human carcinogen

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

### STOT-repeated exposure

no data available

### Aspiration hazard

no data available

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## 12. Ecological information

### 12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

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## 13. Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## 14. Transport information

### 14.1 UN Number

ADR/RID: Not dangerous goods.    IMDG: Not dangerous goods.    IATA: Not dangerous goods.

### 14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods.

IMDG: Not dangerous goods.

IATA: Not dangerous goods.

### 14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods.    IMDG: Not dangerous goods.    IATA: Not dangerous goods.

### 14.4 Packing group, if applicable

ADR/RID: Not dangerous goods.    IMDG: Not dangerous goods.    IATA: Not dangerous goods.

### 14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

### 14.6 Special precautions for user

no data available

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

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Quartz (SiO <sub>2</sub> )	Crystalline silica, quartz	14808-60-7	238-878-4
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
Chemical name	Common names and synonyms	CAS number	EC number
Cristobalite	Crystalline silica, cristobalite	14464-46-1	238-455-4
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
Chemical name	Common names and synonyms	CAS number	EC number
Tridymite	Crystalline silica, tridymite	15468-32-3	239-487-1
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Not Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Not Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Not Listed.

## 16. Other information

### Information on revision

**Creation Date** Apr. 11, 2019

**Revision Date** Apr. 11, 2019

## Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

## References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*