

Material Safety Data Sheet (MSDS)

Bentonite (Montmorillonite Clay)

Chemical Name: Bentonite / Montmorillonite Clay | CAS No. 1302-78-9

1. Identification of the Substance and Supplier

Product Name	Bentonite (Sodium / Calcium Montmorillonite Clay)
Chemical Family	Hydrated alumino-silicate clay (smectite group)
CAS No.	1302-78-9
Synonyms	Bentonite, montmorillonite, sodium bentonite, calcium bentonite, drilling clay
Product Use	Drilling fluids, sealing/liners, foundry, animal feed, filler, agriculture
Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
Contact	projects@ochnology.com bd@ochnology.com

2. Hazards Identification

GHS Classification: Bentonite itself is not classified as hazardous. Product may contain free crystalline silica (quartz); respirable crystalline silica dust is hazardous (IARC Group 1). Signal word: **WARNING (dust)**.

- Bentonite itself is not classified as a hazardous substance under GHS
- May contain variable amounts of free crystalline silica (quartz) as a natural impurity
- Prolonged/repeated inhalation of respirable crystalline silica dust can cause silicosis
- Inhaled crystalline silica is classified as carcinogenic to humans (IARC Group 1)
- Dust may cause mechanical irritation to eyes, skin, and respiratory tract; drying effect on skin

3. Composition / Information on Ingredients

Component	CAS No.	Concentration
Bentonite / Montmorillonite Clay	1302-78-9	>85%
Free Crystalline Silica (Quartz)	14808-60-7	Variable (typically low)
Other natural minerals	Various	Balance

4. First-Aid Measures

Inhalation: Move to fresh air. Seek medical attention if respiratory irritation or breathing difficulty persists.

Skin Contact: Wash with soap and water. Repeated contact may have a drying effect on skin.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses if present. Seek medical attention if irritation persists.

Ingestion: Rinse mouth with water. Bentonite is inert; seek medical attention if discomfort occurs.

5. Fire-Fighting Measures

- Non-combustible material; does not present a fire or explosion hazard
- Use extinguishing media appropriate to the surrounding fire
- Note: wet bentonite is extremely slippery – a slip hazard underfoot
- Firefighters should wear standard protective gear for the surrounding fire

6. Accidental Release Measures

- Avoid generating airborne dust during clean-up
- Collect dry material mechanically (sweep or vacuum) into suitable containers
- Avoid wetting – wet bentonite becomes very slippery and difficult to remove
- Wear appropriate PPE (respirator, goggles, gloves) during clean-up

7. Handling and Storage

- Minimise dust generation; use local exhaust ventilation
- Avoid inhalation of dust – may contain respirable crystalline silica
- Store in a dry, covered area; bentonite is hygroscopic – keep sealed
- Keep spillages dry to avoid slip hazards; use appropriate respiratory protection

8. Exposure Controls / Personal Protection

- Bentonite (inhalable / total dust): 10 mg/m³; respirable 5 mg/m³ – typical reference values
- Respirable crystalline silica (if present) OEL: 0.05 mg/m³ (8-hr TWA) – typical reference
- Provide local exhaust ventilation where dust is generated
- Respiratory protection (N95/P2), safety goggles, gloves, and suitable work clothing

9. Physical and Chemical Properties

Property	Value
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Appearance	Grey / off-white / cream / tan powder or granules
Odour	Odourless to slight earthy odour
pH (in suspension)	Approx. 7 – 10.5 (type dependent)
Melting Point	Not applicable (decomposes / dehydrates on heating)
Solubility in Water	Insoluble; swells and forms a gel/suspension
Bulk Density	Approx. 0.8 – 1.1 g/cm ³ (form dependent)

10. Stability and Reactivity

- Stable under normal conditions of storage and use
- Swells and forms a thixotropic gel in contact with water
- Hygroscopic – absorbs moisture from air
- No hazardous reactions or polymerization under normal conditions

11. Toxicological Information

- Low acute toxicity; bentonite is inert and not significantly absorbed
- Repeated inhalation of respirable crystalline silica (if present) can cause silicosis
- Crystalline silica (inhaled) is classified by IARC as Group 1 (carcinogenic to humans)
- Dust may cause mechanical irritation; repeated skin contact may cause dryness

12. Ecological Information

- Not classified as hazardous to the aquatic environment
- Naturally occurring inert clay; no significant bioaccumulation
- Used in environmental sealing applications; low ecological concern
- Avoid release of large quantities of dust into the environment

13. Disposal Considerations

- Dispose of in accordance with local, state, and national regulations
- Inert material; may be disposed of as non-hazardous solid waste where permitted
- Preferably reuse or recycle; avoid dust release during disposal

14. Transport Information

UN Number	Not regulated
Proper Shipping Name	Not classified as dangerous goods
Hazard Class	Not applicable
Packing Group	Not applicable
Remarks	Not regulated for transport by road, rail, sea, or air

15. Regulatory Information

- Bentonite not classified as hazardous under GHS
- Respirable crystalline silica content subject to occupational exposure regulations
- Listed on major chemical inventories as bentonite (CAS 1302-78-9)

16. Other Information

This MSDS has been prepared in accordance with the GHS 16-section format. While bentonite itself is low-hazard, natural bentonite may contain free crystalline silica; appropriate dust controls and respiratory protection should be used. Wet bentonite is slippery. Information relates to the specific material designated.

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