

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Bentonite
- English Name: Bentonite
- CAS Number: 1302-78-9
- Formula: $\text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2 \cdot \text{H}_2\text{O}$ (Average empirical formula)
- Molecular Weight: Variable (380-400 g/mol)
- Product Characteristics: Natural clay mineral, high montmorillonite content. Excellent swelling, adsorption, and binding properties. Insoluble in water but swells to form gel. Non-toxic, environmentally friendly, suitable for industrial, cosmetic, and food applications.

2. Technical Specifications

Item	Specification
Appearance	Light gray to off-white powder
Swelling Capacity (2h)	≥ 10 mL/g
Montmorillonite Content	$\geq 70.0\%$
Moisture Content	$\leq 10.0\%$
pH Value (5% suspension, 25°C)	6.0-9.0
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 2 ppm
Iron (Fe_2O_3)	$\leq 5.0\%$
Insoluble Matter in Water	$\leq 5.0\%$
Density (25°C)	2.0-2.3 g/cm ³
Adsorption Capacity	≥ 80 mg/g (methylene blue adsorption)

3. Product Advantages

- Natural mineral origin, environmentally friendly.
- Excellent swelling and adsorption properties.
- Strong binding capacity for solids and liquids.
- Cost-effective for large-scale industrial use.
- Food-grade option available (meets FDA standards).

4. Application Fields

- Drilling Industry: Drilling fluid additive (viscosifier, shale stabilizer).
- Foundry: Sand binder for metal casting.
- Wastewater Treatment: Flocculant for suspended solids and heavy metal removal.
- Cosmetics: Absorbent in face masks, body powders, and dry shampoos.
- Food Industry: Anti-caking agent for powders, clarifying agent for beverages.
- Other: Cat litter, soil amendment, paint thickener.

5. Usage Methods

- Drilling Fluid: Add 3-8% (mass ratio) to drilling mud; stir to form gel.
- Wastewater Treatment: Dosage 100-500 ppm; mix with wastewater and stir for 30 minutes.
- Cosmetics: Add 5-15% to formulations; mix evenly.
- Optimal Conditions: Apply at 15-35°C; avoid strong acids and bases.

6. Packaging & Storage

- Packaging: 10 kg/bag (plastic-lined kraft bag), 25 kg/drum (HDPE), 1000 kg/IBC totes.
- Storage: Cool, dry, well-ventilated warehouse ($\leq 30^{\circ}\text{C}$); keep sealed.
- Shelf Life: 36 months (unopened).
- Transportation: Non-dangerous goods; avoid moisture, collision.

7. Safety & Protection

- Wear protective gloves, safety goggles, and dust mask during handling.
- Avoid dust inhalation and eye contact; rinse immediately if contact occurs.
- Food-grade product: Comply with food additive dosage limits.

8. Quality Assurance

- Manufactured under ISO 9001 quality management system.
- Food-grade products meet FDA and national food safety standards.
- Each batch accompanied by COA.