KEDIA MINERALS

(House of Quality Industrial Minerals) ESTD- 1988

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BENTONITE POWDER

INTRODUCTION

Bentonite is essentially a highly plastic clay containing not less than 85% clay mineral, montmorillonite. It gets its name from the place where its presence and usages were first discovered - Fort Benton, America. Bentonite is of a great commercial importance possessing inherent bleaching properties like fuller's earth, hence, it is known as bleaching clay. Bentonite consists chiefly of crystalline clay minerals belonging to the smectite group, which are hydrous aluminum silicates containing iron and magnesium as well as either Sodium or Calcium. Bentonite has multi-properties including swelling, hydration, water absorption, viscosity, thixotropy, which makes it a multi-application product for diverse industries.

Bentonite are normally exploited by quarrying. Extracted bentonite is distinctly solid, even with a moisture content of approximately 30%. The material is initially crushed and, if necessary, activated with the addition of soda ash (Na_2CO_3). Bentonite is subsequently dried (air and/or forced drying) to reach a moisture content of approximately 15%. According to the final application, bentonite is either sieved (granular form) or milled (into powder and super fine powder form). For special applications, bentonite is purified by removing the associated gangue minerals, or treated with acids to produce acid-activated bentonite (bleaching earths), or treated with organics to produce organoclays.

Types of Bentonite

Swelling-type (or sodium bentonite)

Sodium Bentonite expands when wet, absorbing as much as several times its dry mass in water. Because of its excellent colloidal properties, it is often used in ***Drilling mud*** for ***oil*** and ***gas wells*** and **boreholes for geotechnical** and **environmental investigations.** The property of swelling also makes sodium bentonite useful as a sealant, since it provides a self-sealing, low permeability barrier. It is used to line the base of landfills, for example. Various surface modifications to sodium bentonite improve some rheological or sealing performance in geoenvironmental applications, for example, the addition of polymers.

Non-Swelling-type (Calcium Bentonite)

Calcium Bentonite is a useful *adsorbent* of ions in solution, as well as fats and oils. It is the main active ingredient of fuller's earth, probably one of the earliest industrial cleaning agents.

Calcium Bentonite may be converted to sodium bentonite (termed sodium beneficiation or sodium activation) to exhibit many of sodium bentonite's properties by an ***Ion Exchange*** process. In common usage, this means adding 5–10% of a soluble sodium salt such as ***Sodium Carbonate*** to wet bentonite, mixing well, and allowing time for the ion exchange to take place and water to remove the exchanged calcium. Some properties, such as viscosity and fluid loss of suspensions, of sodium-beneficiated calcium bentonite (or sodium-activated bentonite) may not be fully equivalent to those of natural sodium bentonite. For example, residual calcium carbonates (formed if exchanged cations are insufficiently removed) may result in inferior performance of the bentonite in geosynthetic liners.

Potassium Bentonite

Also known as potash bentonite or K-bentonite, potassium bentonite is a potassium-rich illitic clay formed from alteration of volcanic ash.

Uses of Bentonite

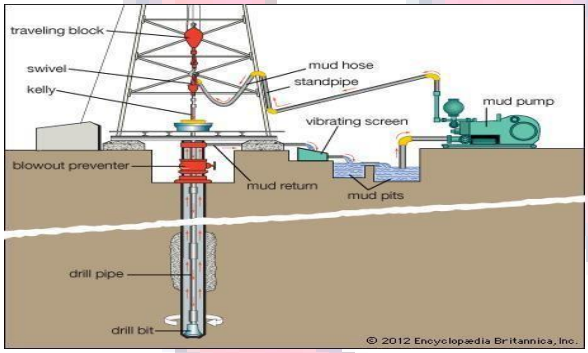
1. ***Foundry:*** Bentonite is used as a bonding material in the preparation of molding sand for the production of iron, steel and non-ferrous casting. The unique properties of bentonite yield green sand moulds with good flowability, compactability and thermal stability for the production of high quality castings.

2. ***Pelletizing:*** Bentonite is used as a binding agent in the production of iron ore pellets. Through this process, iron ore fines are converted into spherical pellets, suitable as feed material in blast furnaces for pig iron production, or in the production of direct reduction iron (DRI).

3. ***Construction and Civil Engineering:*** Bentonite in civil engineering applications is used traditionally as a thixotropic, support and lubricant agent in diaphragm walls and foundations, in tunnelling, in horizontal directional drilling and pipe jacking. Bentonite, due to its viscosity and plasticity, also is used in Portland cement and mortars.

4. ***Environmental Markets:*** Bentonite's adsorption/absorption properties are very useful for wastewater purification. Common environmental directives recommend low permeability soils, which naturally should ontain bentonite, as a sealing material in the construction and rehabilitation of landfills to ensure the protection of groundwater from the pollutants. Bentonite is the active protective layer of geosynthetic clay liners.

5. ***Drilling:*** Another conventional use of bentonite is as a mud constituent for oil and water well drilling. Its roles are mainly to seal the borehole walls, to remove drill cuttings and to lubricate the cutting head. Well Drilling remains one of the largest volume market for Bentonite. The important characteristics of this type of Bentonite are Mud yield, Gel Strength and wall building properties. The specification of drilling mud is given as per American Petroleum Institute (API) and as per Oil Companies Materials Association (OCMA). Manek Group offers well knows brand as "NATURAL PLUS-XL" and "NATURAL PLUS-30". Tailor made products can be offered upon request.



6. ***Oils/Food Markets:*** Bentonite is utilized in the removal of impurities in oils where its adsorptive properties are crucial in the processing of edible oils and fats (Soya/palm/canola oil). In drinks such as beer, wine and mineral water, and in products like sugar or honey, bentonite is used as a clarification agent.

7. ***Agriculture:*** Bentonite is used as an animal feed supplement, as a pelletizing aid in the production of animal feed pellets, as well as a flowability aid for unconsolidated feed ingredients such as soy meal. It also is used as an ion exchanger for improvement and conditioning of the soil. When thermally treated, it can be used as a porous ceramic carrier for various herbicides and pesticides.

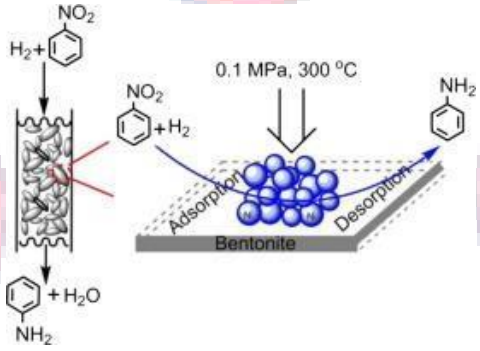
8. ***Pharmaceuticals:*** Cosmetics and Medical Markets: Bentonite is used as filler in pharmaceuticals, and due to its absorption/adsorption functions, it allows paste formation. Such applications include industrial protective creams, calamine lotion, wet compresses, and antiirritants for eczema. In medicine, bentonite is used as an antidote in heavy metal poisoning. Personal care products such as mud packs, sunburn paint, baby and facepowders, and face creams may all contain bentonite.

9. ***Detergents:*** Laundry detergents and liquid hand cleansers/soaps rely on the inclusion of bentonite, in order to remove the impurities in solvents and to soften the fabrics.

10. ***Paints:*** Dyes and Polishes: Due to its thixotropic properties, bentonite and organoclays function as a thickening and/or suspension agent in varnishes, and in water and solvent paints. Its adsorption properties are appreciated for the finishing of indigo dying cloth, and in dyes (lacquers for paints & wallpapers).

11. ***Paper:*** Bentonite is crucial to paper making, where it is used in pitch control, i.e. absorption of wood resins that tend to obstruct the machines and to improve the efficiency of conversion of pulp into paper as well as to improve the quality of the paper. Bentonite also offers useful de-inking properties for paper recycling. In addition, acid-activated bentonite is used as the active component in the manufacture of carbonless copy paper.

12. ***Catalyst:*** Chemically-modified clay catalysts find application in a diverse range of duties where acid catalysis is a key mechanism. Most particularly, they are employed in the alkylation processes to produce fuel additives, orillon, in Southern France.



Packing details of Bentonite

- 50 kg. HDEP plastic woven bags
- 1 Ton Jumbo Bags

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DRILLING GRADE BENTONITE (API GRADE)

Properties	Unit	Requirement	Result
Viscometer Dial Reading At 600 rpm	r/min	30	34
Yield Point/Plastic Viscosity Ratio	-	3 Max	2.85
Filterate Volume	ML	15 Max	14.4
Moisture Content	% by weight	10.0 Max	10
Dry Screen Analysis (Reside Greater than 75 Micron) %	% by weight	4.0 Max	3.0-4.0

DRILLING GRADE BENTONITE (OCMA DFCP GRADE)

Properties	Unit	Required	Result
Yield	bbls/2000 lbs	90 min	99-115
A.P.I. Filterate Loss	Ml	15.0 Max	13-14
Moisture Content	% by weight	15.0 Max	10.0-12.0
Dry Screen Analysis 100 mesh sieve residue	% by weight	98.0 min	98.5
Wet Screen Analysis 200 mesh sieve residue	% by weight	2.5 Max	1.75

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Dedicated To Industrial Minerals

Tips To Make Better Use Of Bentonite Clay

- If you want to validate the clay you are purchasing, ensure that it is gray or green and not too white. If it is white, it could be adulterated.
- See how the clay mask reacts with your skin. You might see breakouts the first few times because it is flushing out toxins. But if the breakouts are recurring, you might want to stop using it.
- Use wooden or ceramic spatulas and bowls. Avoid bringing the clay in contact with iron utensils – as doing so may reduce its effect.
- Do not leave it on for too long. Make sure you clean it off within 30 minutes (it should dry out by then).
- Avoid this if your skin is too dry and flaky.
- Always follow up the pack with a moisturizer.

Specifications of Pilling & Civil Engineering grade of Bentonite powder (Pil – O - Gel grade)TM.

1.	Marsh Viscosity	30-60	Sec.
2.	Liquid Limit (SFSA method)	400	Min
3.	Slurry Density	1.03-1.12	g/ml
4.	Moisture/ Water Content	12%	Max
5.	PH	9	Min
6.	Dry Screen Analysis:		
	(Pass through 100 mesh/ 0.150 micron sieve.)	98%	Min
	(Pass through 200 mesh/ 0.075 micron sieve.)	80%	min

Specifications of A.P.I. – 13A (Section – 6) Grade/ OCMA Grade Bentonite Powder

S. No.	Parameters		Required		We deliver (Petr0o –Grade)	
1.	Moisture	-	13.0%	max	12.0%	max
2.	Viscometer Reading (600 r.p.m.)	-	30 cps	min	34 cps	min
3.	Residue	-	2.5%	max	2.0%	max
4.	Filterate	-	16.0	max	15.6	max
5.	PV –YP Ratio	-	6.0	max	5.9	max

Above results are taken after preparing 6.43% slurry of Bentonite power with distrilled water (i.e. 22.5 grm Bentonite/350 ml)

About Us

Kedia Minerals is a Jaipur based Industrial Minerals Manufacturing and Exporting company having our mining lease of iron ore on Jaipur- Delhi highway, we are processor and supplier of minerals like Hematite powder, Magnetite Powder, Red Iron Oxide powder, Bentonite Powder, Synthetic Magnetite Powder and Anti Corrosion Micaceous, Mica Flakes, Mica Powder, Magnetite sand, Garnet Sand for waterjet cutting, Garnet for Sand Blasting and other blasting abrasive like Copper slag, PS Balls, Brown Fused, Alumina and Specular Hematite,. We have specialization in Oil well drilling Minerals, Waterjet cutting Abrasive and Heavy density grit and sand for nuclear power plant and various cable styled dams, metro railways etc, apart form this we are also specialized in processing of silica and Quartz sand for various uses of foundry and glass industries.

We Believe in Fair Business Policies, Transparent Dealings and consider our customer satisfaction to be our companies topmost priority.

Contact Us

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