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Luminate Minerals

**Bentonite**

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# BENTONITE

## Chemical Formula of Bentonite:

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$(\text{Na, CaO}) (\text{Al, Mg}) (\text{Si}_4\text{O}_{10})_3 (\text{OH})_6 \cdot n\text{H}_2\text{O}$

## Definition:

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Bentonite deposits 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 ( $\text{Na}_2\text{CO}_3$ ).

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, treated with acids to produce acid-activated bentonite (bleaching earths), or treated with organics to produce organoclays.

## Types of Bentonite:

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**Sodium Bentonite:** Sodium Bentonite has a natural swelling ability and will maintain its swelling ability throughout its use.

**Calcium Bentonite:** Calcium bentonite is a non-swelling bentonite. It will not swell without additives or chemicals. Calcium bentonite enhanced with additives will quickly lose its swell

It is the swelling ability of the sodium bentonite that enables this clay to bond with the soil to create an impenetrable liner in the soil.



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## Applications:

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- ✔ Foundry
- ✔ Cat Litter
- ✔ Pelletizing
- ✔ Construction and Civil Engineering
- ✔ Environmental Markets
- ✔ Drilling
- ✔ Oils/Food Markets
- ✔ Agriculture
- ✔ Pharmaceuticals
- ✔ Detergents
- ✔ Paints: Dyes and Polishes
- ✔ Paper making
- ✔ Catalyst

## Packing & Order Details

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Packaging: 25 kg PP bag | 1 MT Big Bag

Price: Negotiable, depending on the amount of the order

Payment terms: T/T 100% cash in advance

Min order: 1\* 20 ft. FCL

Delivery time: Within 2-3 weeks after the payment



## Contact Info:

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# Sodium Bentonite

## Properties and Applications

Sodium Bentonite absorbs water, swelling up to 20 times its original size and creating a gel, modish kind of substance. This property makes it nature's sealant. Soil with a high percentage of natural clay is very unlikely to leak water. Sodium bentonite is an efficient sealant.

Most state laws in the United States require wastewater lagoons and treatment plants to be covered with a layer of sodium bentonite pond sealer to prevent seepage of toxic materials underground. It is a 100% natural product, with no chemical additions, being used to avoid seepage of toxins to the ground is a massive statement of its sealant powers.

Sodium bentonite also has a "clumping" property. This ability to "clump" is what makes it the main ingredient in cat litter. As an addition, it helps control odor, which is great when it comes to kittens and their indoor needs. While cat litter contains other ingredients and some chemicals are added to it, they are mostly added for comfort and are harmless to your beloved pet. This "clumping" property is also useful in a foundry, where sodium bentonite is the product responsible for holding together the green sand mold.



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Sodium bentonite is also a component often found in the drilling mud used during the excavation of oil wells and tunnels. Drilling mud plays an important role during excavation, helping control the pressure of the well, displacing the cut bits to prevent the formation of mud cakes, helping reduce the heat caused by friction during the drilling process, and lubricating the drill.

Sodium bentonite can also be used in the steel industry to aid the formation of steel pellets. In construction, as a sealer for underground cellars or basements. As a liner in the construction of ponds, tanks, and artificial lakes. In agriculture, as a disperser for fertilizers and pesticides. The list goes on and on, with research all over the world always finding new uses for sodium bentonite.

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# Calcium Bentonite

## Properties and Applications

Calcium Bentonite absorbs impurities and color bodies from fats and oils, basically acting as a cleansing agent. One of the first recorded applications in the industry of calcium bentonite is of a textile industry product called "fuller's earth," named like that because the "fullers" (the textile workers) added this material into a bath to wash raw wool, cleansing the impurities and stains in the material before processing it.

Due to its capacity to absorb impurities, it has been studied for animal consumption. Several studies indicate that it can help reduce digestive and kidney issues in farm animals and stock ever since it has been a common ingredient in processed food for stock and farm animals.

Calcium bentonite is also widely used as an ingredient in facial cleansing masks, shampoos, toothpaste, and some soaps. The cleansing benefits of bentonite and its absolutely natural composition make it a great exfoliant for our skin and scalp.

Calcium bentonite can also be used for cat litter. The difference with sodium bentonite is that calcium bentonite doesn't have that "clumping" capacity.





## Average Chemical Analysis

Compound	granuled bentonite	API bentonite (drilling)	animal feed bentonite	bentonite for molding sands
SiO <sub>2</sub> (g/100g)	66.18	62.2	62.1	63.03
Al <sub>2</sub> O <sub>3</sub> (g/100g)	15.5	16.35	18.1	17.30
Fe <sub>2</sub> O <sub>3</sub> (g/100g)	1.06	4.09	3.52	4.33
TiO <sub>2</sub> (g/100g)	0.17	0.65	0.15	0.69
P <sub>2</sub> O <sub>5</sub> (g/100g)	0.02	0.06	0.02	0.07
MnO (g/100g)	0.06	0.03	0.05	0.02
CaO (g/100g)	1.17	0.63	1.33	0.23
MgO (g/100g)	4.07	3.26	1.68	3.49
Na <sub>2</sub> O (g/100g)	1.36	2.38	2.75	2.71
K <sub>2</sub> O (g/100g)	0.29	0.32	0.89	0.44
SO <sub>3</sub> (g/100g)	0.02	0.2	0.80	0.20
PPC a 1000 °C (g/100g)	10/04	9.82	10.31	7.38



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