



Bentonite Has Many Uses

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BENTONITE, its uses in industry and the part it is playing in the late's war effort, may well be the title of this article.

The most remarkable feature of this bentonite found in Weston county near Upton, Wyoming, is its behavior when mixed with water. It swells to some 13 times its own volume, forming a stiff jelly. There are thousands of uses of Wyoming bentonite, such as its uses in foundry trades, chinaware, firebricks, rubber manufacturing, soaps, dillering, vinegar, etc., cosmetics, lotions and salves, as a water sealer in concrete and to prevent water seepage in reservoirs. There is scarcely any industry which cannot directly or indirectly benefit by utilizing properties of this material.

At Upton, near where these three plants are located, over 4,522 freight cars of the finished product were shipped in 1944. Taking this total in an average of forty-ton cars, this is approximately 170,880 tons of material finished by the three plants. Shipments of this material went to many parts of the United States, and the export shipments went to numerous countries around the world.

Industrial Use Extensive
Large foundries and industries turning out vital war materials are fully using this material in many

ways, and since the outbreak of World War II, the demand for Wyoming bentonite has increased many times. These plants operate on a 24-hour basis and every day of the week.

While some bentonite is found in other parts of Wyoming and the United States, the best crude of bentonite in the world is mined at Upton, Wyo. It was in 1928 that the bentonite industry first started to grow, when at that time it was shipped in crude form before there were plants here to turn out the finished material as is being done today.

Bentonite is now so extensively known that only a brief resume of its physical and chemical properties need be given here. Bentonite is a natural clay occurring in the plains of Wyoming, and consists of a hydrous silicate of alumina, chiefly montmorillonite. There are many types of "bentonite," but the high colloidal variety is peculiar in this part of Weston county. Ten parts of this bentonite in 100 parts of water, form a stiff cream, while 17 parts of bentonite in 83 parts of water is the stiffest mixture that will blow through a 3/4-inch pipe.

The "gelling" property of bentonite is utilized in industry to prevent settlement and sedimentation of powders mixed with water. Three to five percent of questal bentonite keeps in permanent sus-

● One of the bentonite plants of Weston county with thousands of tons of the raw product stockpiled for future use.

pension such powders as silica, blacking, whitening, barytes, etc., when mixed with water. The suspending properties of Wyoming bentonite are further increased by the addition of one-half to one per cent of magnesia, magnesite or other alkali.

Foundries Use Valuable
Perhaps the largest outlet for bentonite is in the foundry trades, where it is used as a bonding agent for burned sand. Much research has been done on this subject, and most modern foundries now employ a system of sand treatment and control. The idea is to use a synthetic moulding sand of consistent quality instead of the variable sands found in natural deposits. This is carried out by mixing a suitable bonding agent with a silica sand, together with other additions such as coal dust. The sand is then checked for strength, moisture and permeability, and any alterations necessary made until correct results are obtained. After casting, the burned sand is rebonded with further additions of materials to replace the worn-out bond.

Bentonite is used as an emulsifying agent for preparing aqueous emulsions of asphalt used for road and other work. Almost unknown

in this country is the use of bentonite in the Ceramic industry, for promoting plasticity and strength. Bentonite is also used in the rubber industry. Rubber latex usually contains 30 to 40 per cent of rubber and in that state is a watery liquid, which flows easily. The addition of bentonite thickens up the suspension to any desired plasticity, enabling it to acquire a "set." Bentonite can also be used in reclaimed rubber dispersals.

Bentonite is also used to thicken the mixture of barium and water so it can be swallowed more easily and gives it a consistency resulting in better penetration of the folds and interstices so that clearer pictures result. This combination is used in many leading hospitals and medical institutions.

It is also used as a base for cosmetics, ointments and salves. It is finding increasing use and also as an absorbent and carrier for such substances as vitamins.

In oil-well drilling bentonite is used for thickening suspensions and wall-sealing, and it is used as a seal to prevent water seepage in reservoirs. In fact there is scarcely any industry which cannot directly or indirectly benefit by utilizing the remarkable properties of this wonderful material. It is to this end that Wyoming bentonite is now playing such an important part in the period.

FIRST MONUMENT

Devils Tower in northeastern Wyoming was the first national monument to be established, having been created in 1906 and placed under the jurisdiction of the National Park service.



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