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## Bentonite Plays Role in Car Manufacture

By MARY HOMER  
Staff Writer

One of the few places in the world you can find bentonite rock is Wyoming. Just like the kangaroo is a one-of-its-kind animal, bentonite has unique properties unlike any other mineral. And that's what makes it valuable.

Bentonite is a rock composed of clay minerals formed by the alteration of minute glass particles that once composed volcanic ash. The minerals of bentonite are chiefly crystalline clay minerals. They belong to a group which is characterized by its ability to swell when placed in water.

Perhaps this swelling ability more than anything else is what makes bentonite valuable. Wyoming bentonite is used to seal ponds, reservoirs, as fillers in medicine, a plastic agent in paints, a paper filler, a clarifying agent in wine as well as being used in the same capacity in cosmetics and pharmaceuticals.

But aside from these subsidiary uses, the majority of Wyoming bentonite is used in the steel industry. Black Hills Bentonite Co. ships 90 per cent of its product by rail to steel industries in the midwest.

While the benefits of using bentonite in the steelmaking process are not fully understood, it is known that bentonite controls the growth rate of the iron ore pellet and binds the iron particles together with enough strength to permit the pellet to

move from conveyor to conveyor until the pellet is baked. During the baking process, the bentonite allows enough steam to escape to prevent the pellets from exploding.

Because the cost of shipping bentonite is great, the steel industry has been looking for a substitute but so far they have been unable to replace bentonite, according to Black Hills General Manager Tom Thorson.

The ten per cent of bentonite which is not shipped by rail is used in this area for two purposes: In making slurry for the oil fields and as a binding agent in stock feed.

In the oil fields, bentonite is combined with other chemicals to form a type of mud called slurry. As the bentonite slurry is pumped into the drilling hole, it cools and cleans the drill bit. The slurry also carries the drill cuttings up and out of the hole while sealing off the sides which helps prevent cave ins and undesirable water seepage.

Another use of bentonite is in making sand molds. Since pure silica sand has no bonding ability, it cannot be worked into a self-supporting shape. For this reason four to five per cent bentonite is added to the sand to provide the necessary bonding strength.

Black Hills Bentonite shipped 100,000 tons — 3,600 carloads of bentonite last year, Thorson said. The price of bentonite is low and the profit is made in the sale of large quantities. Thorson said the price has declined ten per cent in the last year because of the large quantities being mined.

There is essentially two parts to the Black Hills operation, the mines near Kaycee where a good quality of sodium bentonite is found in the uplift of the Big Horn Mountains and the processing plant which sits on a bluff west of town.

Bentonite is mined by strip mining techniques. Black Hills leases land from individual claims, the state and has some claims of its own in the Kaycee area. Constant laboratory checks are necessary to insure the quality of bentonite and define the area to be strip mined.

The rock is brought to Casper by truck. Here a portion of the water is removed and the rock is ground. Thorson who is also a geologist explains that it is ground because in its lumpy form it is hard to mix for example with iron ore.

The processing plant puts out about 600 tons daily — 12 carloads. Thirty-five people are involved in the operation including the truckers on contract.

Black Hills Bentonite was founded in 1917 in Moorcroft. It closed its doors there as the deposit depleted in 1965 and opened up its Casper operation in 1964.

Owners of Black Hills Bentonite are Harry Thorson and Al Harding. Leroy Engdahl is assistant general manager and does most of the laboratory work.



ALBERT C. HARDING



THOMAS A. THORSON



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