



## THE ROLE OF COMPOSITE MATERIALS PROTECTING AGAINST EXTERNAL INFLUENCES IN THE DESIGN AND CONSTRUCTION OF MOTORWAYS.

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**Key words:** Navbahor bentonite clay mine is located 12 km north of the Kalkanota village of the Nurota ridge in the Navbahor district of the Navoi region. Cohn in 1998 O.U. Mirzayev and Kh. Chinigulov discovered and explored. The confirmed reserve is 7142.6 thousand tons. Industrial horizons of bentonite clay are located in the underground layer and form asymmetric osmotic corner wings with a distance of 3 km. There are three types of clay in the mine: alcoholic and alkaline-earth bentonites and carbonate polygorskites. Their total thickness is 7-13 meters.

**Abstract:** Today, sorbents obtained on the basis of bentonite clay are used in various fields of the national economy: bleaching for cotton oil, industrial wastewater treatment, environmental protection,

**Introduction:** There are many mineral deposits in Uzbekistan. Among them, clay minerals such as bentonite, polygorskite and kaolin deserve attention. Among the natural mineral sorbents, the cheapness of bentonites and the abundance of their reserves are the reason for the increasing interest in them. They cannot always be used in their natural state. Therefore, it is possible to prepare suitable adsorbents and catalysts from them using various activation methods. Currently, modified sorbents based on bentonite clays are widely used in more than 200 areas of the chemical industry.

Volatile bentonites are gray, greenish gray, chalky. It swells slowly but strongly in water. The mineral composition consists mainly of montmorillonite. Clay also contains hydromica, quartz and iron hydroxides.

Volcanic bentonites are light gray, chalky. It quickly separates into thin plates in water, but does not swell. The rock-forming minerals are montmorillonite and hydroxide. Additional vegetation such as palygorskite, quartz, and iron hydroxides are found.

**Main body:** Carbonate palygorskite clays are light gray, almost white. It has a shell shape, does not decompose in water. Palygorskite has a montmorillonite calcite polymer composition.

Bentonite can be used as a light washing fluid in oil and gas prospecting drilling, that is, 12-14 m<sup>3</sup> of washing water can be prepared from one ton of bentonite clay. It is used as an adsorbent in the purification of cottonseed oil, wine and fruit juices. Optional bentonites can be used in the production of hair, nail polish, expanded clay, pharmaceuticals and cosmetics, drinking water, technical and industrial wastewater treatment.

Today, sorbents obtained on the basis of bentonite clays are widely used in various fields of the national economy: cotton oil bleaching, industrial wastewater treatment, environmental protection, medicine, cosmetology and other fields. In particular, the high content of sodium

ions, high cation exchange capacity of alkaline bentonite clays makes it possible to prepare various modified adsorbents from them.

Bentonite with a rich composition of montmorillonite clay, which meets the requirements of modern industrial production, is widely used in various fields.

Bentonite powder is a material in a dry and polished state of natural substances, its composition consists of bentonite clay that has preserved all its colloidal and chemical properties. Such clay soils differ from ordinary clay residues in a number of advantages. It's like this:

- spreading (swelling) small particles expand faster and more fully than larger ones;
- transporting bentonite powder over long distances is convenient and cheaper;
- mechanization and automation for the preparation of mixtures convenient;

The quality of bentonite powder and its transfer to different brands is determined, first of all, by the quality of the original clay, and secondly, by the convenient methods of technological processing. It is possible to increase the quality (modification) of clay fibers by processing clays with various reagents during the grinding process. Mixing soda water  $\text{Na}_2\text{CO}_3$  and acrylic polymers significantly improves the quality of bentonite powder.

**Results:** Clay powders are the main material with structural, rheological, filtering and other special properties necessary for the preparation of mixtures in the drilling process. Chemical additives are added to drilling mixtures only as a means of regulating the properties of the fluid. Bentonite clay is one of the mineral materials used in various fields of human activity. Its other name is suknogil, which is related to its use in fabric softening. In modern industry, bentonite clay is mainly used in metallurgy for iron processing and for the preparation of utrile mixtures. It is also important to use bentonite clay as a waterproofing raw material for the production of drilling and construction mixtures, refining petroleum products, as well as for the production of heat and waterproof materials.

Pure bentonite clay is rarely used, often bentonite clay dust is used in industry and other areas of the economy. This product is made by drying and finely grinding bentonite clay. Bentonite clays are added to the composition of polymer materials and concrete products, increasing their waterproofing properties. On the basis of bentonite powder, the most convenient drilling mixtures are produced, in addition, mixtures with high alkaline properties and good results in vertical and horizontal drilling can be prepared.

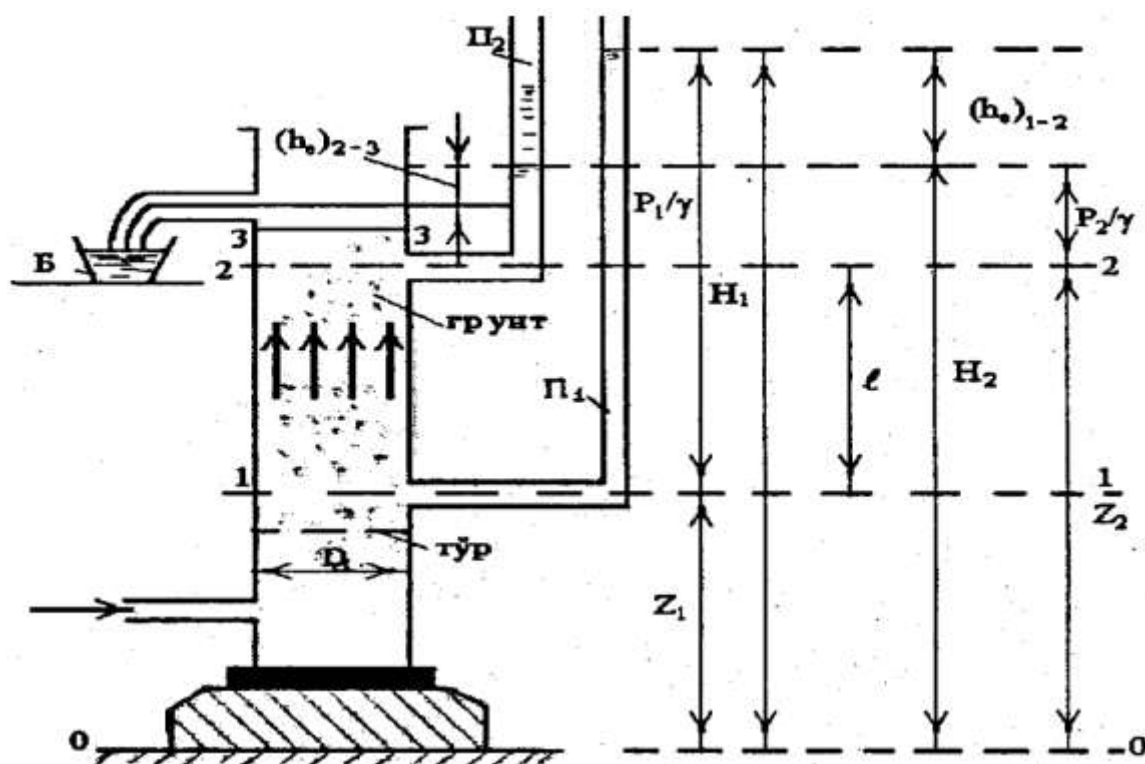
Bentonite clay is the main raw material in the preparation of natural mixtures together with heat-resistant materials. Depending on the proportions of bentonite powder and perlite, such mixtures can have different properties. The formulation of the mixture based on bentonite clays is characterized by high strength, optimal gas permeability, and they are easily mixed and environmentally friendly products.

Bentonite clay is also called by the name of bentonite, which is used in various fields for waterproofing properties. This material is very easy to use and can be used during the construction process in almost any weather conditions, including low temperatures. A waterproofing layer containing bentonite clay can be used for a long time, eliminates an almost unlimited number of hydration-dehydration cycles, and does not show any deterioration during the change of seasons. An important feature of the bentonite waterproofing screen is that bentonite has the ability to self-restore when damaged.

Navbahor bentonite clay mine is located 12 km north of the Kalkanota village of the Nurota ridge in the Navbahor district of the Navoi region. Cohn in 1998 O.U. Mirzayev and Kh. Chinigulov discovered and explored. The confirmed reserve is 7142.6 thousand tons. Industrial horizons of bentonite clay are located in the underground layer and form asymmetric osmotic corner wings with a distance of 3 km. There are three types of clay in the mine: alcoholic and alkaline-earth bentonites and carbonate polygorskites. Their total thickness is 7-13 meters.

Kattakurgan bentonite clay mine - Samarkand province mine is located 15 km southwest of Kattakurgan city, on the side of the road leading to Ingichka town. The geological structure of the mine includes Cretaceous, Paleogene and Neogene deposits. They are located between Paleozoic rocks of Zirabolok Mountain and extend 5-12 degrees from the south. Bentonite clay consists of 2 parts separated by an intermediate layer. The thickness of the lower part is 18-20 m. The upper part is green, 15-30 m thick. The intermediate layer consists of yellowish bentonites with a thickness of 0.3-0.5 m. Gray bentonite clays have a montmorillonite mineral composition. Hydromica, organic substances and scattered pyrite minerals are found in the form of inclusions. The lower part of the green chilly is carbonate and has marl layers 2.5-3.0 m thick. A significant amount of zeolite is found in clay. The intermediate layer is composed of pure montmorillonite and formed by alteration of volcanic fibers due to galmyrolysis. Clays are used in the preparation of washing fluids for drilling wells, in the purification of cottonseed oil and wine, and in the production of expanded clay. A manufacturing plant is in operation at the mine.

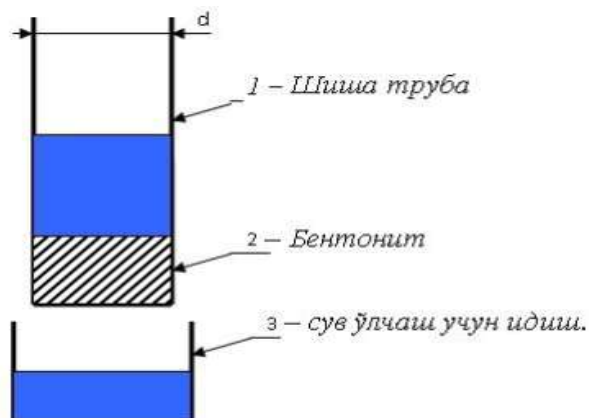
Empirical formulas recommended by various authors are given in the literature on the calculation method. Here are some of them.



Determination of the filtration coefficient using Darcy's instrument.



Overview of the device.



A cylindrical transparent container is filled with bentonite clay and tightly closed. (Figure 2.6). Water is pumped from top to bottom, and the water filtered through bentonite flows into the measuring tank. As a result of the research, the water passing through the bentonite layer is very clean, and this factor shows that bentonite has the ability to filter. This feature explains that it can be used as a filter in various industries. Based on experimental data

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