Characteristics of Top Brand Connectors

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ABSTRACT

An analysis of the world economic trends in capital construction, in particular in the production of binding materials and cement, shows that the use of resources and energy-saving, innovative technologies is a requirement of the present and future. The article presents ideas and experimental developments of energy-saving nanotechnologies, innovative methods for obtaining astringent low water requirements.

Keywords: the waste, processing, knitting, neutralization, impurity, the technique

In recent years, a number of researchers and specialists have recommended the production of binders based on active mineral additives based on theoretical and practical aspects. However, the shortage of cement, its quality, and its cost remain a problem. High-grade binder is a highly active hydraulic binder, a product of finely ground cement or clinker, active mineral additives, gypsum stone or water-reducing powder superplasticizers. The water requirement of high-quality binder differs by 10-15% compared to ordinary cement. By judiciously using local raw materials and industrial waste, high-quality binders can be obtained, and the amount of cement consumed in the production of building materials and structures based on them can be significantly reduced. Cement clinker - from 30% to 95%, active mineral additives - from 30-40% and plasticizer additive JK-08 up to 3% by weight of cement clinker. 30-45% of active minerals such as fine sand and ash can be added to the composition of high-quality binders as active mineral additives. Binders obtained by crushing cement clinker and using high amounts of active mineral additives and superplasticizers or complex modifiers are called high-grade binders. In high-grade binders, superplasticizers are added to the powder during the grinding process. High-quality binders have the ability to retain superplasticizer, activate the plastic properties of dough based on binders with a high degree of softness, that is, 5000-5500 kg/m3, and reduce the normal density, as a result, it allows to obtain a high-quality binder.

A hydraulic binder formed by burning clinker until it partially melts is called gypsum, and in some cases, with special additives, a hydraulic binder is called portland cement. Cement clinker is obtained by burning the raw materials of the relevant composition until the mixture is partially melted, and mainly contains high-base silicates and high- or low-base aluminates, partially fused and solidified as a result of partial melting. Portland cement clinker and portland cements of "Kyzilkumtsement JSC" were used in scientific studies related to obtaining high-quality binders. Used portland cement clinkers fully

meet the requirements of UzSt 2801:2013. The properties of their chemical and mineralogical composition are presented. Gypsum stone of JSC "Bukhorogips" JSC was used in order to manage the setting time of the high-quality binder in the conducted research works. The gypsum stone used is mainly composed of CaSO4·2H2O and meets the requirements of State Standard 760-96. Barkhan sand was used in order to save clinker in the binder when obtaining these substances.

In the Central Asian region, including the south-western borders of the Republic of Uzbekistan, that is, in the valleys of the Amudarya, in the desert areas of Ustyurt, Karakalpakstan, Khorezm, Navoi, Bukhara, Surkhandarya, Kashkadarya, Jizzakh regions, sands with small rocks are widespread. The chemical and mineralogical composition of barkhan sands of some mines located in the Republic of Uzbekistan are presented. Density of barkhan sands in the territory of Uzbekistan ρ= 2,35 ÷ 2,63g/sm^3, bulk density $\rho_{уй}$= 1,25 ÷ 1,38g/sm^3, porosity 42÷47%, relative surface area S_c= 2,6 ÷ 2,72g/sm^3, bulk modulus $M_к$=0,41-0,49. 3 - Based on the analysis of the data presented in the table, it was found that the chemical composition of barkhan sands in the territory of the Republic of Uzbekistan is similar in terms of composition. Barkhan sand from the Varakhsha mine in the Bukhara region was used to obtain a high-quality binder. As can be seen from the mineral composition of barkhan sands, the main minerals that make up the composition include quartz, feldspar and carbonates. Gypsum and other silty, dusty rocks are rare. The quartz particles in the composition have a prismatic shape, the amount is 40-50%, and the size of the particles is 0.2-0.3 mm. and the amount of feldspar in the composition consists of potassium and sodium compounds. Feldspar and other minerals have prismatic, angular and pointed clasts, the size of which is around 0.05-0.1 mm. Since quartz and feldspar make up the main part, such sands belong to the category "Quartz feldspar". According to its chemical composition, silicon oxide has the largest amount. The amount of other metal oxides is 25-30%, so its composition has a "crystalline-amorphous" phase. According to the granulometric composition, these sands belong to the category of fine-grained sands, that is, the amount of 0.54-0.01 mm grains is up to 80%.

The chemical composition of barkhan sands in several regions of the Republic of Uzbekistan, Karakalpak, Jizzakh, Urganch and Bukhara deserts is presented in the table. It was determined that the content of SiO2 varies from 60% to 70% and the amount of A12O3 varies from 8% to 13% in all parts of barkhan sands in the deserts of Uzbekistan. It was 3 hours and 50 minutes. To determine the strength, the prepared samples were hardened by wet heat treatment, and the strength of the samples after the 1st day was 36.3 MPa (Table 1). The same samples in the laboratory. Comparative surface area of 4000 cm2/g was ground to obtain a paste of normal density of Portland cement, 17.6% of water was used in relation to the mass of cement. The beginning and end of its hardening time was 1 hour 32 minutes, respectively, and after being tested for 28 days, their compressive strength was equal to 60.5 MPa. Effect of superplasticizer on cement normal density and setting time is presented in table 1.

T/p	Clinker content%	Barkhan sand,%	Gypsum stone, %	Superplasticizer ЖК-08, %	Comparison surface, см^2/г	28 strength per day, MPa	Hardening time, Hour-min	
							The beginning	The end
1	95	0	5	0	3500	52.0	02:00	04-05

2	75	15	4.4	0,6	4800	50.2	01-50	03-00
3	70	20	4.2	0,8	5900	55.7	01-40	3-40
4	65	25	4.4	0.6	6000	62.0	01-35	3-30

The analysis of experimental studies shows that, as a result of the application of mechano-chemical principles and the highly effective effect of chemical additives, first of all, the quality of cement is increasing under the influence of finely ground active mineral additives. Initially, when 95% clinker and 5% gypsum together had a specific surface area of 5200 cm2/g, the strength at 28 days was 52 MPa. By reducing the amount of clinker to 75% and adding 15% barhan sand and 0.6% superplasticizer, the obtained strength remained, on the contrary, the strength increased to 50.2 MPa. In a similar experiment, I reduced the amount of clinker to 70% and added 20% barhan sand, 0.8% superplasticizer, and the softness level was reduced to 5900 cm2/g, and the strength when crushed was 55.7 MPa. When the amount of clinker was reduced by 65% and when I added 25% barhan sand and 0.6% superplasticizer, the softness level was 6000 cm2/g, and the strength was 62 MPa and increased by 2 MPa, and it showed the highest result in the above experimental work. 4.4%, 4.2%, 4.4% of gypsum was added to the cement in each experiment. It can be seen that the increase in the degree of softness of the minerals that make up the binder is proportional to the grade of the binder, that is, as the softness increases, so does the grade of the binder.

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