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IMPLEMENTATION OF GRANIT MINERALS IN THE PORTLANDSEMENT QUALITY OF STRENGTH

Khamzaev N. J.,
Turaev Kh. Kh.
Termez State University

Abstract

In our research work, iron ore was used instead of metallurgical slag in the production of port land cement, and it was found that the brand and quality of clinker did not decrease. The optimal composition was achieved by reducing the amount of clay in order not to increase the amount of silicon oxide in the raw flour. When 10% of Campirtepa granite mineral was taken in relation to cement mass, crushed and flotation at the "Khonjiza" beneficiation factory, its compressive strength was increased by 11-12%.

Keywords: Portland cement, granite, limestone, concrete.

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In the production of Portland cement, it is important to know the mineralogical composition of raw materials and to choose the optimal proportions to obtain cement of the required composition [1]. In another study on the production of Portland cement with mineral additives, it was proposed to add mineral additives together with gypsum crystalline hydrate containing two molecules of water [2]. The effect of high-calcium ash and dolomite additives on the strength and corrosion resistance of concrete based on portland cement under different conditions was determined [3]. Nowadays, various types of cements are produced in the world - hydrophobic, sulfate, acids, alkali and salt resistant, adapted to different conditions [4]. In this regard, one of the tasks facing materials science is to expand the base of mineral raw materials in the production of mixed binders due to the use of sedimentary rocks [5]. These rocks mainly contain components such as silicon oxide, zeolite, quartz, limestone, mica, and therefore they have different effects on the properties of cement [6].

Results Analysis

D_2O cement was obtained by adding 10% of the Campirtepa granite mineral and limestone to the clinker at Portlandsement plants and the clinker based on "Choyankon" iron ore. Based on the obtained new composition cement, concrete samples were prepared in different water-cement ratios and found to be resistant to bending and compaction at 2, 7 and 28 days. The results obtained are shown in (Fig.1.)

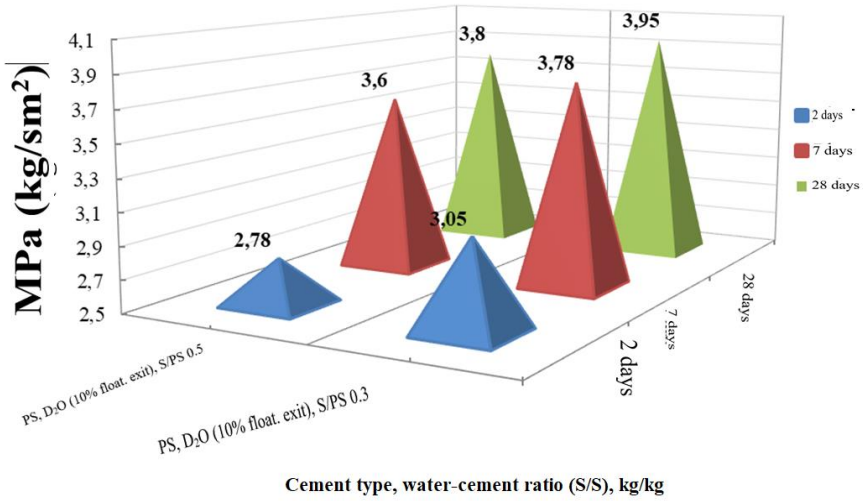

Fig.1. The bending strength of concrete obtained in different cement-based cement-based cement-based proportions with 10% limestone and 10% Campirtepa granite mineral added to the clinker made with slag

Concrete sample at a cement ratio of 0.5 and 0.3 water-cement based on 10% limestone and 10% Campirtepa granite mineral was prepared for the clinker with the addition of slag. As can be seen from (Fig.1), 2.78 MPa in 2 days at a water-cement ratio of 0.5, 3 at 7 days. This can be explained by the fact that the strength increased when the water-cement ratio was 0.3, with the addition of iron ore to the raw material, the amount of four calcium allumoferrit in the clinker is more than usual.

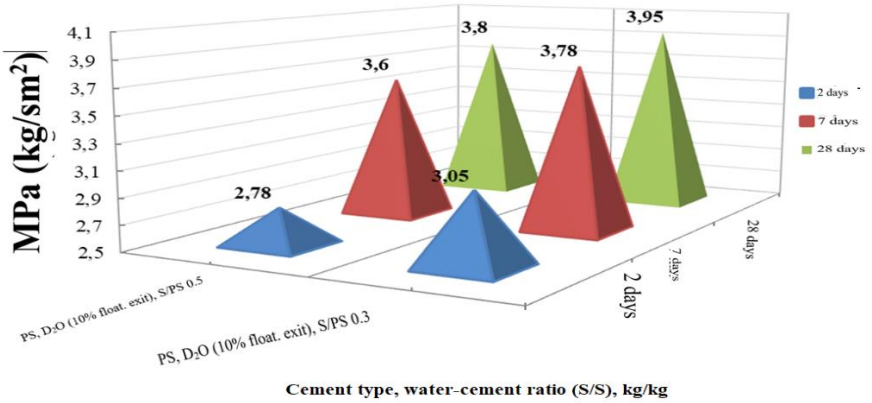

Fig.2. Compression strength of concrete obtained in various cement-based cement-based cement-based cement with 10% limestone and 10% Campirtepa granite mineral added to the clinker made with slag

The bending strength of a concrete sample prepared with a water-cement ratio of 0.5 and 0.3 based on cement with 10% limestone and 10% "Khonjiza" flotation waste added to clinker prepared by adding slag was determined. As can be seen from (Fig.2). 13.7 MPa in 2 days at 0.5 water-cement ratio, 26.8 MPa at 7 days, 33.5 MPa at 28 days, 14.95 MPa at 2 days at 0.3 water-cement ratio, It was 27.6 MPa at 7 days and 35.4 MPa at 28 days. In this case, the increase in strength when the water-cement ratio is 0.3 can be explained by the fact that when iron ore is added to the raw materials, the amount of four calcium aluminoferrites in the clinker is more than usual.

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