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THE EFFECT OF CHEMICAL ADDITIVES ON THE HARDENING OF PUTSOLAN PORTLAND CEMENT

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ABSTRACT

This article analyzes the data on the effective use of chemical additives to increase the strength of putsolan portland cement.

KEYWORDS

chemical, additive, superplasticizer, pozzolan polishing cement, mineral

INTRODUCTION

Types of additives All additives (natural or artificial chemical products) are classified according to the mechanism of their action and are divided into 4 classes:

1) additives that change the solubility of mineral binders and do not enter into a chemical reaction with them.

2) additives, reacting with binders and forming difficult soluble or poorly soluble complex compounds.

3) additives, forming a ready center of crystallization.

4) organic surfactants (SAM), which have the ability to adsorb on the surface of the solid phase [1].

Superplasticizers are additives for construction mixes and concrete. By adding these organic and inorganic substances or their mixtures (compatible units) to the concrete composition, the controlled properties of this concrete mixture are controlled. The purpose of applying the supplement is to reduce construction costs

(at the same time, saving cement), changing the functional and quality characteristics of concrete, preserving its properties during the preparation of the concrete mixture for placement, titration, and hardening. They can be divided into two groups. The first group includes chemicals that are added to concrete in small amounts to change the properties of concrete and concrete mixture in the required direction.

The second group includes finely crushed materials (ashes, crushed stones, sand, stone crusher waste) that are added to concrete by 5-20% and more to save cement to obtain dense concrete with less cement consumption. Also, this additive is added to concrete to give it special properties (increasing density and heat resistance, changing electrical conductivity, etc.) [2].

When active mineral additives are added to putsolan portland cement, the water resistance and corrosion resistance of the cement stone increases. Types of cement with active mineral additives:

1. It is used for the preparation of many construction mixes and dry construction mixes.
2. putsolan Portland cement (PPS) -20 and up to 40% additive. Underground and constructions in water are used in the preparation of mixtures for concrete, for the assembly of concrete panels and large blocks; slakoportlandcement (ShPS) - with 20 and 80% slag addition.
3. ShPS for the preparation of huge concrete and reinforced concrete structures and used for preparation of construction mixtures.
4. The average size of cement grains is 15-20 μm, which is equal to 2500-3000 corresponds to the surface.
5. The density of portland cement without mineral additives is 3.1 g/.
6. The setting time is when the cement is normally mixed with water
7. Not less than 45 min, up to 10 hours.
8. The normal porosity of puuststsshchlan portland cement is usually 30 to 35%. will be up to

An important characteristic of cement with active mineral additives.

One of the important quality indicators of Puutstsshchlan Portland cement and other cements is activity, this indicator is a 4 cm sample prepared with a 1:3 (cement:sand mixture and s/s (water:cement ratio)= 0.4) at half compaction of hammers and 28 days of hardening. is the endurance limit obtained.The brand of cement is the amount of its activity, there are the following brands of portland cement: M300, M 400, M 500, and M 600 types of cement. Portland cement is a technology for changing the properties of clinker-based cements;

- Features of puutstsshchlan portlandcement. Fineness is determined by the amount of cement passed through a 008 sieve (pore size 0.08 mm); less than 85% of the grade to be sieved must be sieved.
- changing the mineral composition of clinker (raw material
- by changing the chemical composition of the mixture);
- introduction of various additives during clinker crushing;
- increase the fineness.

There are several groups of cements based on Portland cement.

- Group I. In the process of grinding, active mineral (FMQ) is a natural or artificial substance that, when crushed:
- It does not harden on its own;
- When mixed with airy lime, it gives it the property of hardening;
- When mixed with Portland cement, the cement is simple and
- increases its durability in mineral waters.

FMQ includes natural and man-made materials:

- Natural: volcanic (ash, tuff, tuff) igneous (diatomite, trepel,
- opoks) rocks;
- Artificial: glint semyanka (burnt earth), siliceous earth

- wastes (white slag) sour sol, granulated blast furnace slag, belite sludge (aluminum, soda production waste) [1].

The chemical additive "Beton strong 17" has a good effect on reducing the water-cement ratio of concrete, increasing its plasticity, and increasing its strength.

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