

EFFECT OF CHEMICAL ADDITION ON CONCRETE MIXTURE

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Annotation.

The article provides information on the effects of chemical additives on concrete mixes. Chemical Additives The simplest and most easily available technological methods of improving the properties of concrete are shown.

Keywords:

Cementitious admixture, stabilizing additives, additives that adjust the kinetics of hardening, additives that increase strength, additives that increase frost resistance.

It is no exaggeration to say that in recent years the Republic of Uzbekistan has become a major construction site. Large-scale construction of large-scale industrial, residential and public buildings is being carried out at a high pace in all regions of the country. Therefore, improving the production of modern building materials, including the implementation of promising projects, technical and technological modernization of enterprises - is a requirement of the times.

Chemical additives are one of the simplest and most easily available technological methods of improving the properties of concrete. Its application allows to dramatically reduce the cost of production of reinforced concrete structures, significantly increase product quality and service life. Therefore, the application of concrete technology with the addition of chemical additives in construction practice is of great importance in the leading countries of the world. To date, the share of concrete with chemical additives is more than 80% in Japan, more than 70% in the United States, Germany, France and Italy. Currently, there is no single classification of chemical additives for cement mixes and concretes worldwide. Different classification schemes of chemical additives have been adopted in different countries. Along with the CIS countries, chemical additives for concrete and mixtures in accordance with GOST 24211-103 in Uzbekistan are divided into the following 2 groups:

The first group is additives that adjust the properties of the finished building mix and concrete mix. These include plasticizing additives (superplasticizers, strong plasticizers, plasticizers), stabilizing additives, mobility control additives, porous additives (air intake, foaming, gas generating) additives.

The second group is additives that change the properties of solid construction mix and concrete. These include additives that adjust (accelerate, decelerate) the hardening kinetics, additives that increase strength, additives that reduce permeability, additives that enhance the protective properties of reinforcement, increase frost resistance.

The applicability of any chemical additive to this or that group is determined by the criteria of effectiveness in accordance with GOST 30459. The most effective of modern superplasticizers are polycarbonate-based superplasticizers. For example, GLENIUM superplasticizer (BASF, Germany) is one of the most effective chemical additives. The mechanism of their effect on cemented systems is given. [1]

The choice of chemical additives to improve the properties of concrete and reinforced concrete is a simple matter. Therefore, it is very important for professionals to know their classification and mechanisms of action on cemented systems.

The effect of the addition of "Betong strong-17" on the compressive strength of concrete.

Table 1

№	Sample names	The mobility of the concrete mix is OK, cm	Average density, g / cm ³	The amount of admixture relative to the mass of cement %	Compressive strength of concrete (MPa), days			
					R _c 3	R _c 7	R _c 14	R _c 28
1	Without attachments	4,5	2.27	0	14.8	25.7	26.6	26.9
2	"Betong strong-17"	5.8	2.30	1	15.3	26.3	27.8	28.0

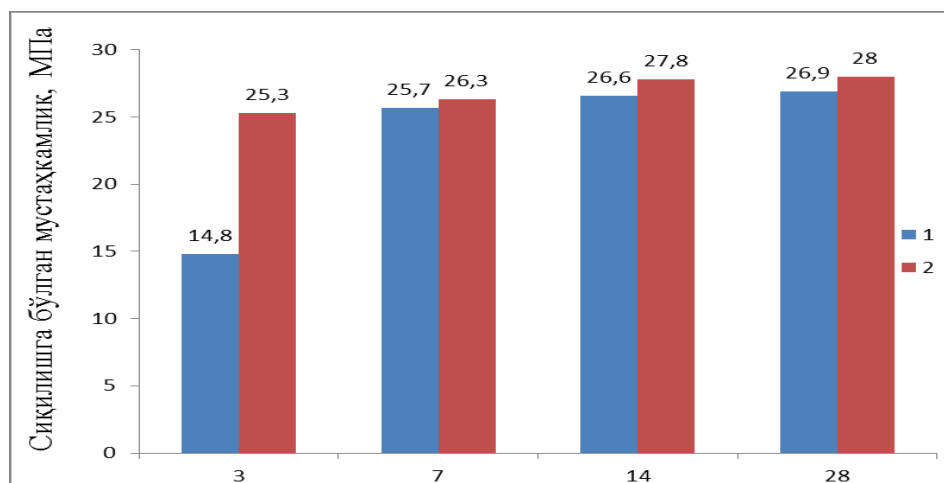


Figure-1. "Betong strong-17" the effect of the additive on the compressive strength of concrete. 1 sample without attachments (control). 2 additional samples (1%). [3]

In short, many measures are aimed at improving the mechanical properties of concrete. One of the main directions of scientific and technological development in the field of reinforced concrete production is the reduction of technological processes, product quality and durability based on superplasticizers, hyperplasticizers and new generation complex chemical additives to concrete technology. The introduction of superplasticizers in concrete dramatically increases the convenient placement of the concrete mix and improves the physical and mechanical properties, operational properties of concrete.

References:

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