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DETERMINATION OF THE OPTIMAL COMPOSITION OF GPQ ADDITION FOR BUILDING AND ROAD CONSTRUCTION STRUCTURES USED IN ISLAND AREAS

Teshaboeva Nodira Djurayevna
Fergana Polytechnic Institute
Senior teacher of the Department of Geodesy, Cartography, Cadastre
teshaboyevanodira1953@gmail.com

Abstract: This article is said about the drying up of Aral Sea and being able to use chemical accessions in order to increase corrosion-fortitude of road building construction. It was taught and determined optimal component accession.

Key words: construction, irrigation canals, hydroelectric power plants, hydrotechnical, irrigation construction.

Until now, the primary and secondary layers protecting concrete against salt corrosion do not show sufficient anti-corrosion efficiency, even if they are used, due to their lack of development, the scarcity of materials used for the protective layer, and the high cost. Therefore, the corrosion resistance (stability) of concrete is considered a big problem, especially in the hot and dry climatic conditions of Islanded regions. Scientific studies were conducted to determine the optimal composition of GPQ-admixture, the effect of the amount of additives and the technological processes of concrete mixture preparation on the physical and mechanical properties of concrete was studied.

Concrete mixtures belonging to classes V 15, V 25, and V 30 were accepted as objects of research. Gravel and sand meeting standard requirements were used as fillers. The components of the additive GPQ, the indicators of the wet-heat treatment regimes of the solidification process were determined by the method of mathematical planning of research. The GPQ-admixture of concrete is considered one of its main indicators, and optimization of this indicator consists of the following characteristics: Strength of concrete - (U1), water consumption of concrete mixture - (U2).

Taking into account the previous studies, cement consumption was accepted as variable factor - (X1) kg/m2. These indicators include the molecular filling of large fillers (X2), the amount of fillers (X3) %. Based on the following variation limits in relation to cement mass: 290-430; 0.4- 0.6 and 0.1 – 0.3 (GPQ -2 and GPQ -3 and 0.5- 1% GPQ - 4. In practice, it is necessary to increase the resistance of various structures to the influence of salt, not only integral reinforced concrete structures, but also prefabricated reinforced concrete structures (slabs used for roads and airfields, reinforced concrete prefabricated blocks used for various foundations, various irrigation structures, irrigation pipes etc. [1].

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prefabricated blocks used for different foundations, various irrigation structures, irrigation pipes, etc. [1].

In the production of reinforced concrete, it is necessary to take into account that the GPQ admixture slows down the initial structuring of concrete. Based on this purpose, optimization of the hot treatment mode during the drying process of concrete with GPQ was also considered. In the course of laboratory research, the initial mode TVO 2+3+6+2 s, under the influence of temperature 80-850C, the total duration of 13 hours was adopted. Experimental heat treatment of concrete samples was carried out under laboratory conditions in a non-pressure steaming chamber, the heat temperature was automatically controlled with an accuracy of 0.50S. The amount of optimal admixture GPQ to concrete, the optimality of the optimal wet-heat treatment regime was determined by the method of mathematical planning of research. As a determining factor, the strength of concrete during one day of hot-wet processing of concrete was taken, and (u) as the next variable factors in relation to their variation limits:

X1 – in hours, the duration of holding the sample in the initial sample (2-6s)

X2- duration of isothermal heating, in hours (4-6s)

X3 – Isothermal heating temperature 0C (65-95)

As a result of statistical processing of active experimental studies and laboratory results, the final strength indicators of concrete after hot-wet treatment were compared to the following parameters created by the mathematical model: for GPQ-2, GPQ-3 and GPQ-4. We determine the degree of effectiveness of the thermal-wet treatment of concrete on concrete strength by the following decreasing series. GPQ-3 > GPQ-2 > GPQ-4. Duration of heat treatment is 14 hours, mode 4+3+5+2 hours, temperature of 800C is the most optimal process. As a result of the plasticizing effect of the GPQ-admixture, it has been determined that the cementing system has a special specific state, which is caused by the nature of the dispersion phase. A significant increase in the efficiency of the GPQ-admixture, along with the plasticizing effect of the components, is explained by the high surface activity on the one hand, and on the other hand, it is determined by the compatibility of ATsF resins. The second underlying factor is the mechanism of action of high molecular weight acids formed from water-soluble salts affecting the concrete mixture. In addition, on the basis of GPQ admixture, the shear stress limit of the cement system decreases, and at the same time, the sedimentation state of the concrete mixture decreases, which, based on research, has an effect on the water separation, layering and easy permeability of the admixture even under the influence of high temperature of the environment. It appears in the following descending order according to the mentioned properties in relation to the level of influence of the compounds. The mobility of the GPQ-4 > GPQ-3 > GPQ-2 concrete mixture increases, in particular as follows: from OK- 2 cm to 2- 18 cm; 6-12 and 5-7 cm. GPQ-3 and GPQ-4 significantly increase the ability of plasticization by affecting the "gluing" of particles. In spite of this, the vibrational forming properties of the concrete mixture are also greatly improved in the high temperature environment. If the mixture taken as a reference loses its mobility in 15 minutes, it is

observed that the mixed mixture retains it until 45 minutes.) was observed to be preserved up to 75 minutes [2].

The effectiveness of the plasticizing property of the mixture is determined by the reduction of water consumption, and the ratio to cement consumption is as follows: 7-8, 13-14 and 16-18%. Admixture GPQ- increases the dispersion of newly formed cement stone, increases its bonding with fillers, reduces the water consumption of the concrete mixture, reduces volume deformation (swelling) during the construction of concrete by 1.5-2 times, and serves to increase the strength indicators of concrete.

For example: cube strength of concrete increases by 9-10% when adding GPQ-2 admixture, by 20-28% in GPQ-3, by 28-36% in GPQ-4. For each case, an increase of 10-12%, 26-39% and 40-59% were observed, in which the coefficient of prism strength was legally increased, and an increase of 40-59% was observed, in which the coefficient of prism strength was legally observed 0, From 7-0.73 to 0.72-0.75, from 0.7-0.79 to 0.78-0.82. The admixture added to the concrete mixture in its "early age" (3-7 days) increases its strength very slowly, 24-34% (GPQ-2), 13-20% (GPQ-3) and 20-24% compared to normal conditions. (GPQ-4) and in the remaining period (from 28 days to one year) the strength of the concrete added with the admixture was observed to increase according to the following parameters: 9-18%, 20-48% and 26-62% corresponding amount for each type of joint, which is explained by the uniformity of the very high structure of concrete and the lack of defects, as well as the presence of clinker foundation.

For example: hydrophobized concrete with GPQ-2 admixture shows an increase in strength even after 15 years of storage. It was found in practical studies that the strength of concrete in the mixture of hydrophobized samples is 3-8, while it was equal to 1.2 MPa in standard samples.When an admixture is added to concrete, its stiffness decreases and its deformation properties improve. In this case, the modulus of elasticity of concrete decreases to 18-24% when admixtures are added, and the Poisson's ratio increases to the following indicators: 0.208-0.232 and 0.212-0.249 - the consequence of this situation is the fatigue strength of concrete under the influence of high-pulse dynamic loads, and the resistance of concrete to the formation of cracks. serves to increase.

For example: V30 class concrete showed that its coefficient of fatigue strength is higher by 11-24% when GPQ admixtures are added to concrete, compared to the standard sample, GPQ admixture reduces the internal stresses of concrete due to the plasticization of the mixture and the mutual deformation properties of the particles. . Due to this, tolerance to the formation of cracks in indirect samples increases observed. The numerical value of this indicator ranges from 0.67-0.7 to 0.79-1.01 under normal temperature conditions, from 0.5 to 0.67-0.9 under dry hot weather conditions, and 0 under the influence of cyclically changing temperatures. From 0.76 to 0.8 to 0.86 to 1.04 was determined as practical results.

The effect of joints on the deformation properties of concrete is observed in the following descending order. The presence of clinker foundation in GPQ-4 > GPQ-3 > GPQ-2 cement stone helps to create "self-healing ability" of defects in the concrete structure when GPQ joints are added, and also increases the cold resistance of concrete

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during freezing and thawing. It is confirmed by the results of practical research. according to the frost resistance of concrete with the addition of GPQ-2, GPQ-3 and GPQ-4 admixtures made the following indicators for each case: 250, 300 and 400; which is 1.7-2.7 times. The developed and recommended admixtures, which are greater than the parameters of the standard samples, reduce the water permeability of concrete based on the indicators of improving the porous structure of concrete. At the same time, due to volumetric hydrophobization of cement, it increases its strength indicators, reduces water absorption, and due to this indicator, it is possible to increase the resistance of concrete to the effects of various salts [3].

In this case, the water absorption of concrete increased by 22-25%, the state of water saturation by 1.2-1.7 times, the water impermeability index increased from 4 to 6-12 ATI, i.e. 1.4 times, was confirmed by the results observed as a result of research. - that in order for concrete to have the required design strength indicators, it is necessary to increase the duration of its treatment with a high temperature in the steam chamber. It was confirmed that the best strength indicators were obtained when the duration of thermal treatment was increased by 2-4 hours compared to standard regimes, in this case it was possible to reduce the time of isothermal treatment by 1 hour.

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