

**RESEARCH ON IMPROVING THE PROPERTIES OF CONCRETE MIXTURE WITH
CHEMICAL ADDITIVES**

Ismailov F.S, Karimov M.U. Djalilov A.T.

¹*Doctoral student of the Tashkent Research Institute of Chemistry and Technology.*

²*doctor of technical sciences, professor, Tashkent Research Institute of Chemistry and Technology,*

³*Chemical Science of Doctor, Academician of the Academy of Sciences of the Republic of Uzbekistan, Tashkent Research Institute of Chemical Technology*

Corresponding author: ismoilovferuz54@gmail.com

Abstract. *In this article, the optimal conditions for the synthesis of superplasticizer based on UzKor Gas waste naphtha raw material (with 85-90% naphthalene) are studied. It was determined that the optimal temperature is between 60-700C and 130C0, and such substances as formalin, sulfuric acid and sodium hydroxide were used. According to the obtained results, this super plasticizer was dissolved in 42 g of water and mixed with 100 g of cement, and its expansion was tested based on GOST 310.3-76.*

Keywords: *Naphtha, upper plasticizer, formalin, sulfuric acid, sodium hydroxide.*

1. Introduction

During the years of independence of the Republic of Uzbekistan, industrial production in all sectors of the economy has developed rapidly, which leads to an increase in the volume of raw materials involved in the production process and an increase in the volume of man-made waste[1,2]. Based on this, the problem of nature conservation and rational use of natural resources is of great importance now. Today, in the republic, it is important to produce chemical additives for concrete mixes, including: superplasticizers and hyperplasticizers, to reduce water consumption by using them in concrete mixes, and as a result, to obtain concrete products with high strength[3]. Conducting scientific research and practical application of highly effective superplasticizers used in the construction industry in our country is one of the urgent issues. In order to achieve these indicators, increasing the volume of production of superplasticizers for concrete mixtures, using various alternative sources, has a special place[4].

Until now, the synthesis of additives added to the concrete mixture is carried out by various methods. The most common is the synthesis of naphthalene sulfonic acid and formaldehyde superplasticizer through naphthalene. The rapid growth of the oil and gas industry also leads to the release of secondary raw materials in large quantities. In the research work, Superplasticizers for concrete mixtures were synthesized based on Uz Kor Gas waste, pyrolysis oil, which is a local and secondary raw material[5]. Solving these issues is not only an urgent solution to the problem of environmental protection, but also a beneficial option to provide concrete production enterprises with alternative sources of raw materials and additives, which contributes to the implementation of the program of localization and de-virtification of production. The purpose of the research is to obtain superplasticizers for concrete mixes based on pyrolysis oil[6].

2. Experimental part

The experiment was carried out using UzKor Gas waste Naphtha raw material (which contains up to 85-90% Naphthalene), concentrated H₂SO₄, CH₂O, NaOH solution. During the experiment, 1 mol of liquid sperm is placed in a 400 g glass and brought to a temperature of 60-700 °C. Here the temperature begins to rise and an exothermic process begins. The temperature rises to 110 C0 and we increase the temperature to 130 C0. CH₂O solution is added dropwise using a syringe. After formalin is added dropwise, the reaction temperature drops (the reaction temperature drops to 70 C0). increasing the temperature to 130 °C, we continue to add CH₂O

and a black dark mixture is formed. A 40% NaOH solution is slowly added to the resulting mixture, foaming occurs and the color of the mixture turns dark brown[7].

3. Results and its Discussion

Dissolve the obtained product in 42 grams of water, add it to 100 grams of cement and mix well, and spread according to GOST. The spread of cement falling from the cylinder was spread up to 25 dm.



Figure 1. Spreading of concrete with superplasticizer

During the neutralization process, it was observed that the amount of NaOH solution significantly affected the fluidity of the cement mixture. Superplasticizer was used in amounts from 10% to 40% by mass.

4. Conclusion.

The obtained results showed that when the alkali solution was used in an amount of 10% compared to the mass of the superplasticizer, the plasticizing property showed the highest result, and the expansion of the cement mixture was 16 cm. As a result, a superplasticizer with the highest plasticizing properties was obtained. Experiments were carried out on the basis of GOST 310.3-76.

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