European Journal of Emerging Technology and Discoveries
ISSN (E): 2938-3617
Volume 2, Issue 12, December - 2024

CHEMICAL ADDITIVE SUPERPLASTICIZER BETON STRONG

Kalıknazarova Amangul,
Temuratova Gulbahar,
Sultanova Ruhiya,
Faculty of Civil Engineering of Karakalpak State University

Utepbergenova Maqpal
Super Plasticizer

Abstract
BETON STRONG 27, Beton Strong 17 types of superplasticizers used in concrete production are superplasticizers. Annoin comparison with softeners on a naphthalenic basis of BETON STRONG 27 has higher plasticizing ability due to higher effect of a dispergation that allows to receive concrete mixes with the set parameters at lower value of the water-cement relation. This ability provides concrete mixes with high rates of early and final durability and also high rates on frost resistance, water tightness and mobility.

Keywords: Rocks, magmatic, metamorphic, igneous rocks,

Introduction

Storage and Utilization: To store at a temperature from 5 of 0C, in the closed capacity, to avoid hit of direct sunshine, to protect from high temperatures. The discrepancy to the recommended storage conditions can lead to premature damage of packing or change of properties of a product. If the material has been frozen, gradually defreeze it at temperature +5°C and mix before full restoration. During the restoration do not apply compressed air. You should store a material indoors, far from action of direct sun and protect from sharp temperatures drop. Material period of storage in unopened original packing of 12 months. Utilize the material according to the applicable legislation.

The material expense:

The additive is necessary for adding in concrete after pouring of 50 %-70 % of necessary quantity of water within 0,6-1,5 % from weight of used cement. A water-reducing superplasticizer for rheoplastic concrete mortars, together with anti-freeze additives, provides a high set of early strengths.

Storage, disposal: The material should be stored in places where the temperature is not lower than +5 °C. If the material is frozen, thaw it slowly at a temperature of +5 ° C and mix until it is completely restored. Do not use compressed air during recovery. Store the material in closed rooms, away from direct sunlight and avoid sudden changes in temperature. The shelf life of the material in the original unopened package is 12 months. Dispose of the material in accordance with applicable law. Material consumption: The admixture should be added to the

concrete after pouring 50%-70% of the required amount of water to 1.0%-3.0% of the weight of the cement used.

SUPER plasticizer:

Water reduction for rheoplastic concrete solutions, together with antifreeze admixture, provides high early strength.

Storage and use: The material must be stored in places where the temperature does not fall below +5°C. If the material is frozen, thaw it slowly at +5°C and stir before complete recovery. No compressed air is used during recovery. You should store the material away from direct sunlight and protect it from sudden temperature drops. The shelf life of the material in unopened original packaging is 12 months. Use the material in accordance with applicable law. Cost of materials: Additives are required to be added to concrete after pouring 50-70% of the required amount of water within 0.6-1.5% of the weight of cement used.

Beton Strong 17 superplasticizer:

A water-reducing superplasticizer for rheoplastic concrete mortars, together with anti-freeze additives, provides a high set of early strengths.

Storage, disposal: The material should be stored at a temperature not lower than +5 °C. If the material is frozen, thaw it slowly at a temperature of +5 ° C and mix thoroughly. recovery Do not use compressed air during recovery. Store the material in closed rooms, away from direct sunlight and avoid sudden changes in temperature. The shelf life of the material in the original unopened package is 12 months. Dispose of the material in accordance with applicable law.

Material consumption: The admixture should be added to the concrete after pouring 50%-70% of the required amount of water to 1.0%-3.0% of the weight of the cement used.

Plasticizers for concrete mix: what is it?

Modifiers are liquid or dry compositions that form alkaline or neutral compounds when dissolved in water. It can be mixtures of organic or inorganic origin, which serve to control and regulate the state of cement mixtures during hydration and solidification.

Modifiers of this group are used to obtain plastic, highly mobile concrete mortars (P1-P5) without weakening the strength properties, as well as to improve the following properties of reinforced concrete structures:

waterproof; water resistant; cold resistance; wear resistance; resistance to chemical effects; heat resistance.

It has proven itself in the production of the following products:concrete floors;paving slabs; garden paths etc.

The amount of product consumption and consumption is determined by operational requirements for ready-made concrete structures.

Plasticizer composition

Superplasticizers are classified according to several criteria: according to the chemical composition of substances and the principle of action (steric or electrostatic).

There are modifiers based on the following substances: melamine formaldehyde polycondensate; sulfonated naphthalene formaldehyde polycondensate; lignosulfonates; polyacrylates;

Hyperplasticizers are additives of a new generation. The main principle of the effect of additives is a large steric effect, which is twice as strong as that of plasticizers. Hyperplasticizer for concrete mix.

Need to use: The expediency of using a plasticizer additive is explained by the results that should be obtained in the production of reinforced concrete products, as well as the results necessary to increase the economic efficiency during their use.

The need to use a superplasticizer is shown in the following cases:

When obtaining concrete grade M600 using portland cement grade 400-500 (technological requirements of the project, etc.).

To reduce cement consumption.

When replacing coarse-grained aggregate with less durable fine-grained aggregate in mixtures.

Increasing the stability of structures under axial tension and compression without increasing the consumption of binders.

Positive features of the supplement.This substance has the following advantages:

Properties of plasticizer for concrete mix:increases concrete mobility indicators up to P5;

improves the plasticity (workability) of the solution by 1.5 times;

Reduces the W / C ratio by 25%;

increases the strength parameters of products by 25%;

hydrophobic properties - W10 and higher;

cold resistance value - F300;

adhesion of mixtures to steel reinforcement increases 1.7 times.

Adverse effects of C 3 use

Disadvantages of the modifier:

When additives are added to concrete solutions, the mobility of the mixtures increases, but their hardening rate decreases. To stabilize this indicator, you need to use the supplement along with the adjustment accelerator.

Superplasticizer is toxic and belongs to 3 dangerous classes according to its characteristics. This substance can irritate the respiratory system, mucous membranes of the eyes and unprotected skin.

Due to the presence of sodium sulfate in the additive, there is a risk of efflorescence on the surface of the products.

Instructions for use of plasticizer

Prepare the modifier solution at positive air temperature in clean and washed tanks, protected from precipitation by a light umbrella. The time and conditions of preparation of the supplement are controlled based on the consumer's requirements for the finished product. Product quality depends on the mineral structure of binders and fillers

Instructions for use of plasticizer.

The additive should be added to the concrete mixer in the form of a liquid suspension. The optimal composition of the substance is selected based on the manufacturer's recommendations (located on the product packaging) and process conditions.

The greatest plasticizing effect in cement mixtures occurs when the plasticizer is added with the second part of water.

Working with powder

Distinctive features of additive manufacturing: The calculated amount of warm water is poured into the required volume of the previously prepared dry mixture and mixed. Then a diluted solution of the additive is introduced. Without turning off the mixer, sand, cement and aggregates are poured into the container.

Mix the components until a homogeneous plastic mass is obtained.

Work with a ready-made solution.Adding a plasticizer solution to the concrete mix.

It is much easier to work with the finished liquid composition:

Read the instructions on the package. According to the recommendations, dilute the mixture with the required amount of water.

Pour the solution into the mixer.Add the dry ingredients.Mix until the desired consistency is obtained.

Composite consumption for 100 kg of cement

The dosage of the additive depends on the operational characteristics of the concrete solution, the calculated content of tricalcium aluminate in the binder, the amount of active modifiers (except C3) and the distribution of cement. The amount of liquid plasticizing mixture recommended in the instructions should be 0.4-1% of the binder consumption. The optimal dose is calculated empirically.

Manufacturers of replacement compositions recommend adding 0.5 kg of dry mix and 3-5 liters of ready mix per 100 kg of cement.

References:

1. A. Kalıknazarova “Justification of the Production Technology (Precast Concrete), with the Use of Secondary Construction Waste from Crushed Concrete” TELEMATIQUE ISSN:1856-4194 Volume 21 Issue1, 2022, 7175-7178.

2. A. Kalıknazarova “YENGIL BETON TARKIBIN HISOBLASH’’ 2022j IMPACT FACTOR: 4.628 Vol.1No.9(2022): RESEARCH AND EDUCATION.

3. 1. A. Kalıknazarova “EURASIAN JOURNAL OF ACADEMIC RESEARCH”, Volume 3 Issue 11, November 2023, ISSN 2181-2020, UIF = 8.1 | SJIF = 5.685.