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Varieties Of Chemical Additives for Concrete Mixtures of The Method for Producing Their Mechanisms of Action Their Mechanisms of Action they're On Cons Concrete Mixes and Concrete

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Abstract: The article describes a method for determining various chemical additives are widely used in modern concrete technology. They allow us to direct the formation of the cement composition and improve concrete technologies at all stages of the production of concrete and reinforced concrete products and structures. Chemical additives are obtained from additional products or are specially designed synthesized substances.

Keywords: concrete, modifier, tests, hot, hot climate, concrete mortar, frost resistance, corrosion resistance, insufficient weather resistance

Despite the economic efficiency of pozzolanic and slag Portland cements, they are characterized by a number of disadvantages that reduce the effectiveness of their practical application. Such characteristic disadvantages as delayed hardening in the initial periods, relatively high water demand of capillary suction, unstable frost resistance, corrosion resistance, insufficient weather resistance, increased shrinkage and creep are relatively large Consumption of cement to obtain a branded strength comparable to Portland cement in a large sea can be eliminated by using chemical additives of surfactants (surfactants). [2,3,4,5]

One of the most effective ways to intensify production, improve quality, reduce the cost and material consumption of reinforced concrete structures is the use of chemical additives for concrete mixtures. Various types of chemical additives are widely used in modern concrete technology. They make it possible to control the structure formation of cement compositions in a targeted manner and to improve concrete technology at all stages of the manufacture of concrete and reinforced concrete products and structures. Chemical additives are obtained from by-products, or they are specially synthesized substances for a specific purpose.

They are used as intensifiers for grinding and imparting special properties to cement, for obtaining activated mineral fillers, surface treatment of aggregates, organic components of polymer-cement concretes and as additives to concrete mixtures.In accordance with [9.4], the main additives in the concrete mixture are divided into 9 classes: regulators of the rheological properties of concrete mixtures (plasticizing), plasticizing-air-entraining, air-entraining, gas-forming, sealing, setting retarders, hardening accelerators, anti-freeze, steel corrosion inhibitors, additives for special concretes and cement retarders.For the preparation of lightweight concrete, the following additives are recommended: plasticizing, air-entraining, foaming, gas-forming and hardening accelerators.

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Technical calcium lignosulfonates (LST) are the most widely used as a plasticizing additive for concrete. Aqueous solutions or concentrates of LST are large-tonnage waste intended for pulp and paper mills. [ten].The plasticizing effect of unmodified LST additives is expressed by a decrease in the water demand of the concrete mixture at normal temperature by 5-10%. With an increase in the temperature of the ambient air and concrete mixture, the plasticizing effect of LST is sharply reduced.Slowing down the hydration of cement in the presence of LST additives leads to a decrease in the strength of the cement stone in the initial period of hardening. Along with this, the stabilizing effect of the additive contributes to the formation of a more finely dispersed crystal structure, as a result of which an intensive increase in strength occurs at a later stage of hardening. A significant factor that increases the strength of concrete in the late hardening period is the reduced water demand for cement. In concretes on dense aggregates, the strengthening effect from the introduction of LST in an amount of 0.1-0.15% is 15-20% or is expressed by a cement saving of 5-10%. [3.2].

Recently, developments on the modification of lignosulfate additives for concrete have been intensively developing. The use of fillers for concrete is dictated by theoretical prerequisites and practical necessity. The theoretical prerequisites for filling cement paste are based on assumptions about incomplete hydration of clinker minerals and long-term preservation in the cement stone of the remaining cores of cement grains (30% and more), which, as a result, play the role of fillers.On the basis of the performed studies on the modification of LST, additives UPB, NSDB, CDSC = 1, M = 4, NIL = 10, NIL = 20, NIL = 21, etc. have been developed, the use of which in an amount of 0.2-0.7% increases the plasticizing the effect of the addition without reducing the strength of concrete and allows you to save cement consumption up to 10% [9,12].

Hydrophobizing surfactants are distinguished by their polyfunctional action; they plasticize concrete mixtures with simultaneous volumetric hydrophobization of the material, which contributes to an increase in water resistance and frost resistance of concrete. Water-repellent surfactants are divided into single-component and complex. One-component additives include additives obtained from natural raw materials,products of petrochemical raw materials and shallow oil refining and modified substances [3,2].

One-component water-repelling surfactants are characterized by low plasticizing ability, and some of them, in addition, are insoluble in water, which complicates their direct use for concrete mix. Therefore, complex additives prepared from hydrophobizing and hydrophilizing components are considered more promising, which also complicates their practical application.

Accelerators of concrete hardening not only make it possible to reduce the duration or reduce the temperature of isothermal heating during heat treatment of products by 20-30%, but also have a positive effect on the dispersion of the hydration products of cement stone and its pore structure, strength and frost resistance of concrete.

The range of chemical additives in concrete technology is constantly expanding. Recently, new varieties of chemical additives of various actions have been proposed. Individual and complex additives based on a scrubber paste of synthetic detergents and one stripped off after yeast mash (UPB) can reduce the water demand of the concrete mixture to 10%, involve an additional 3-4% air, increase the total porosity 1.5-2 times, reduce the heat treatment cycle by 20-25%, increase frost resistance by 2-2.5 times. A number of proposed new additives exhibit the same plasticizing effect as SDB, but at the same time they do not inhibit the process of concrete hardening.

Conclusions: Thus, the addition of SPD in the amount of 0.005-0.02% contributes to an increase in the air content in the concrete mixture by 3-6%, which leads to an increase in workability, frost resistance and water resistance by 1.5-2.0 times, and reduces cement consumption by 1 m3 of concrete on average for 10-15 kg. Plasticizing additive PASCH = 1 by-product of caprolactam production - ensures the production of concrete with water resistance B6-BIO and frost resistance MRS 200 and above, with a decrease in cement consumption by 15-20 kg, per 1 m3 of concrete. [7.8].

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