



Construction industry in focus (p. 4)

## MATERIALS

### *Krivoborodov Yu.R., Kuznetsova T.V. The influence of plasticizer on aluminum cements*

Authors studied the influence of super- and hyper-plasticizers on the hydration of alumina and high-alumina cements. It is established that plasticizers reduce the water requirement of cement paste and thereby increase the strength of the cement stone. At the same time, being adsorbed on particles of cement and their hydration products, plasticizers slow down hydration of alumina cements. Accordingly, the potential of these cements is not fully utilized. It is recommended when using aluminous cements to the choice of plasticizers is more attentively than at the use of Portland cement (p. 8).

### *Kucherenko A.A. Energetics of domain granular slag*

According to the chemical composition and taking into account the electrical structure of the atoms, the thermodynamic characteristics of the domain granulated slag as a raw material for Portland slag cement or an additive to cements of any kind and as already calcined substance are studied in comparison with similar characteristics of Portland cement 500, whose raw materials require roasting. The material and quantitative compositions of slag oxides were studied, their charge and energy of interatomic bonds were calculated. The identity of the properties of slag and cement is shown. An example of slag adjustment by the number of charges of a different sign is given. Based on a stable slag composition, it was proposed to develop an unbaked binder technology (p. 12).

### *Kersh V.Ya., Foshch A.V., Kolesnikov A.V. The modernized criterion of water resistance and gypsum-containing materials*

Article proposes a new criterion for water resistance of materials containing gypsum is the water resistance index. The advantages of this criterion in comparison with the softening coefficient are considered – the correct account of the strength of the material in a water-saturated state, statistical determinism, a wide range of changes. The water resistance index has been successfully used in solving problems of optimizing the composition of the material (p. 16).

### *Sivkov S.P., Loginova T.V., Mymrina A.K. Biological additives for dry mortars*

The influence of bacteria on the properties of cement stone was investigated. It is shown that the introduction of bacteria in the composition of cement at the stage of mixing with water leads to increase strength of hardened cement stone and to compaction of the cement stone due to the filling of its pores by calcium carbonate released as a waste product of the bacteria existence. The technology of production of dry bio-additives on the basis of bacteria spores was developed and it is established that its effectiveness are not inferior in comparison to living cultures of bacteria (p. 20).

### *Loganina V.I., Pyshkina I.S. Rheological properties of lime finishing mixtures with the use of synthesized hydrosilicate calcium*

Paper deals with the information on the patterns of calcareous compounds structure formation using additives based on calcium hydrosilicates (p. 24)

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## EQUIPMENT

**Ufimtsev V.M. Technological lime in dispersed raw material**

Author points out that current market value of the 1st grade lime is balanced with cement because it has become much more complex equipment and operating costs. The use of bulk raw materials extends the life of the roasting of lime, reduces its activity, eliminate the use of small fractions of raw materials. Sinter firing of granules on the basis of fine lime diluted with petroleum coke cut the firing time, increases the activity of lime, eliminate the loss of lime-stone. Replacement of a piece by granules not only significantly reduces the cost of the lime, but at the same time, removing the need for highly distressed lime slaking (p. 26).

## TECHNOLOGIES

**Korchunov I.V., Torshin A.O., Kurdyumova S.E., Dmitrieva E.A., Potapova E.N. Influence of effective water reducing additives on properties of cement**

The use of plasticizers additives is an affordable and cost-effective way of increasing the quality of solutions and concrete. This work presents the influence of «Master» superplasticizers additives on the properties of cement. It was revealed that the adding of 0,3-0,7% of these supplements can increase durability and reduce porosity of the cement stone what result in its frost resistance. The paper shows that the ligno-sulfonate additives are as effective as the additives based of polycarboxylates ether (p. 30).

**Mukhamedbaev Ag.A. Mechanoactivation of aluminosilicate component of unburned alkaline binder**

The investigations have been carried out for mechanical activation of the aluminosilicate component in ball mill. The optimal duration of grinding is defined from the viewpoint of physical and mechanical characteristics and expenditure of energy in fine grinding (p. 36).

## INFORMATION

**Davidjuk A.N., Batdalov Y.R. Concrete mixes ready to use do not be dry as Rosstandard experts believe**

Article is devoted to the issue of the quality of ready-mixed concrete mandatory declaration in accordance with the requirements of GOST 7473 «Concrete Mixtures. Specifications» and GOST 28013 «Construction Mortars. General specifications» (the standard as a whole). These standards are included in the List of standards for dry mix subject to mandatory confirmation of compliance. Unlike dry building mixes, ready-to-use ready-mixed concrete and mortars exist as a product only for the period between preparation on concrete and mortar mixing plants and delivery to the object under construction. At the same time, each batch of concrete mix or ready-made mortar shipped to the consumer is accompanied by a quality document, which indicates compliance with the requirements of regulatory state standards (p. 40).

## EVENTS

**Kopylov I.A. Results of bauma CTT RUSSIA 2019**

On the hottest first days of summer, the largest exhibition of construction equipment and technologies in Russia and Eastern Europe, bauma CTT RUSSIA 2019, took place in Moscow from 4 to 7 June at the international Exhibition Center Crocus Expo (p. 44).



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