

## Specificity of additives on the basis of incomplete salt of 1-hydroxyethylidene-1,1-diphosphonium acid with triethanolamine retarding action on gypsum solutions

© Irina V. Berdnik,<sup>1\*</sup> Sergey A. Krasnov,<sup>2</sup> and Yulia G. Budnikova<sup>2</sup>

<sup>1</sup>Technology Laboratory; <sup>2</sup>Laboratory of Electrochemistry. A.E. Arbutov Institute of Organic and Physical Chemistry. Kazan Scientific Center. Russian Academy of Sciences. Arbutov St., 8. Kazan, 420088.

Republic of Tatarstan. Russia. Phone: +7 (843) 272-73-84. Fax: +7 (843) 272-73-34.

E-mail: berdnik52@mail.ru

\*Supervising author; <sup>+</sup>Corresponding author

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### Abstract

Effect of optimized structure salt additive of 1-oxyethylidene-1,1-diphosphonium acid with a triethanolamine for terms of various brands of gypsum solutions concreting is investigated: G4 fast-hardening, G7 middle hardening, G16 slowly hardening, G4 plaster – lime mixes (1:1).

Influence of the additive on durability and water absorption of gypsum plaster samples, including dependence of durability in control terms of concreting: 2 hours and 7 days from temperature, is investigated also.

Introduction of the additive at concentration up to 0.3% of gypsum mass slows down setting of gypsum solutions. Frequency rate of delay reaches 75. It is maximum for slow-setting gypsum, and is minimum for fast-setting gypsum. Durability of received plaster samples in control terms depends, both on a decelerator additive dosage, and from heating environments. In a dosage to 0.1% additive allows to increase gypsum durability, that can be bound to formation under the influence of additive of rather dense and homogeneous cryptocrystalline structure of dihydrate of calcium sulfate. Stronger and dense samples turn out when concreting in the conditions of more high temperatures.

Effectiveness of additive as setting retarder, is comparable with effectiveness of tartaric acid, but unlike tartaric acid it does not reduce gypsum durability. It is much weaker, than action of the most strong decelerators: Plast Retard and tripolyphosphate, which also negatively influence durability. On durability impact the additive of 1-oxyethylidene-1,1-diphosphonium acid with a triethanolamine of the optimized structure concedes only to nitrilotriphosphonium acid.

Additive introduction practically does not influence plaster water absorption. The conducted researches allow to recommend the additive for use as the weak regulator of concreting of plaster and plaster solutions without the ghost effects of strength loss in a dosage 0.1-0.15% of gypsum mass.

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I.V. Berdnik, S.A. Krasnov, and Yu.G. Budnikova

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