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## Modern Materials for Fire Protection of Reinforced Concrete Agro-Industrial Structures

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### Краткое описание

This article presents the results of fire properties of modern materials, namely geopolymer fire-insulating mixtures of domestic production to provide fire protection of reinforced concrete structures of the agroindustrial complex. According to the data of the fire test, it has been established that with the thickness of a fire-proof geopolymer coating of 10 mm no heating of the surface of a reinforced concrete specimen (300×380 C) or of the armature at the depth of its embedding (124.5×500 C) up to the limit states has been noted. It they shown that the protective coating reduces the critical temperature of brittle fracture of reinforced concrete by a factor of 1.3 during 180 minutes of the test. It has been note that due to the protective properties of the coating, the temperature of armature heating at the depth of its laying decreases 4 times in comparison with the unprotected reinforced concrete specimen during 180 minutes of the test. The mechanism of formation of an effective fine-pore structure in the coating with its developed and high heat-absorbing and dissipating capacity has been reveal due to the transition of the binder into the glass-like state, which prevents both physically and chemically bound water vapor from escaping into the hydrate new formations of the geopolymer binder. © 2023 Trans Tech Publications Ltd, Switzerland.

### Ключевые слова автора

fire protection; fire test; geopolymer; mineral mixture; reinforced concrete; temperature

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