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YANAKHMETOV Marat Rafisovich, post-graduate student, Scientific and Research Technological Institute of Herbicides of the Academy of Sciences of the Republic of Bashkortostan (SBI «SRTIH AS RB»); Mendeleev str., 215/2-47, Ufa, 450071, e-mail: ymr89@yandex.ru;

CHUYKIN Alexander Eugenyevich, Ph.D. in Engineering, Ufa State Petroleum Technological University (USPTU); Mendeleev str., 195/2-129, Ufa, 450080, e-mail: an2100@yandex.ru;

MASSALIMOV Ismail Alexandrovich, Doctor of Engineering, Bashkir State University (BashSU), Mushnikov str., 13/2-75, Ufa, 450039, e-mail: ismail_mass@mail.ru.

PORE STRUCTURE MODIFICATION OF CEMENT CONCRETES BY IMPREGNATION WITH SULFUR-CONTAINING COMPOUNDS

The authors study how the impregnation with sulfur-containing compounds changes the concrete pore structure and how it influences on the water absorption and watertightness. The results of this research indicate that impregnation of cement concrete with water-based solution of polysulphide modifies pore structure of cement concrete in such a way that it decreases total and effective porosity, reduces water absorption and increases watertightness. The proposed impregnation based on mineral helps to protect for a long time the most vulnerable parts of buildings – basements, foundations, as well as places on the facades of buildings exposed to rain, snow and groundwater. Application of the new product in the construction industry can increase the durability of materials, preventing the destruction processes caused by weathering, remove excess moisture in damp basements. The surfaces treated by protective compounds acquire antisoiling properties for a long time, and due to reduced thermal conductivity the cost of heating buildings is decreased. The effectiveness of the actions and the relatively low cost of proposed hydrophobizator makes it possible to spread widely the proposed protection method for building structures.

Key words: concrete, sulfur, porosity, impregnation, hydrophobization, nanoparticles, water absorption, watertightness.

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Contact information

Massalimov Ismail Alexandrovich
ismail_mass@mail.ru