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FUTURBETON AS NEUTRON-SHIELDING MATERIAL

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FuturBeton is a high-performance concrete what provides high strength and durability due to nano-activated ground granulated blastfurnace slag (GGBS). The application of ground granulated blastfurnace slag instead of clinker in composite cements leads to CO2-emission saving but normally causes a decrease of reactivity and strength because of its low hydraulicity.
In this work, samples of the FuturBeton with dimensions of 100x100x100 mm3 were prepared to test the neutron shielding characteristics. All samples were examined at the TITAN neutron radiography and tomography facility located on channel 1 of the WWR-K research reactor of the INP ME RK. The attenuation coefficients of each sample were calculated from radiographic measurements. Using neutron tomography, the structural features of the internal structure of these concrete samples were studied. From the results, it can be seen that the experimental data confirmed the effectiveness of the protection of these optimal designs, ease of fabrication and indicated the way for further methodological development of production.

Keywords: neutron-shielding materials, ground granulated blastfurnace slag; Simoloyer®; high energy milling; high performance concrete.

Section

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