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Alkali activated slag pastes with surface-modified blast furnace slag

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Abstract

A surface modification method for blast furnace slag particles is newly proposed to retard the setting time and to mitigate the flow loss in alkali activated slag pastes. BFS particles were treated by a NaOH solution and then were carbonated to modify the surface of the particles. This leads to suppression of the dissolution of the reactive components at the initial stage of the reaction. The effect of the carbonation period and the modifying solution on the physicochemical characteristics of surface-modified BFS particles was investigated. The reaction and mechanical characteristics of AAS pastes produced from surface-modified BFS were also investigated. The test results show that the developed AAS pastes exhibited the delayed setting behavior and the retarded flow loss, and had a compressive strength comparable to those of AAS pastes produced from unmodified BFS.

Keywords: Alkali activated slag; Surface modification; Carbonation; Setting times; Flow loss.

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