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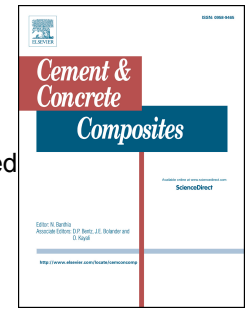

Effects of activator and aging process on the compressive strengths of alkali-activated glass inorganic binders

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Effects of activator and aging process on the compressive strengths of alkali-activated glass inorganic binders

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Abstract: The compressive strengths of alkali-activated glass inorganic binders (AAGIBs), produced under a normal process (i.e., without aging) by using various activators composed of both sodium hydroxide and sodium silicate, were measured. The optimal alkali-equivalent content and silicate modulus needed in the activators to produce the maximum compressive strengths of AAGIBs were determined empirically. Next, the compressive strengths of AAGIBs, produced under an aging process by mixing with various activators composed of only sodium hydroxide, were measured. The effects of alkali-equivalent content, aging temperature, and aging duration on the compressive strengths of AAGIBs were investigated. Moreover, the compressive strengths of AAGIBs obtained under the aging process were compared to those under the normal process. It was found that the compressive strengths of AAGIBs can be enhanced by using the aging process, even if only sodium hydroxide is introduced in the activators.

Keywords: Waste Glass; Alkali-activated; Inorganic binder; Aging process

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