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Book of Abstracts

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Hydrophobized lime grouts prepared with microsilica and superplasticizers

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Abstract

This work reports the obtaining of lime-based grouts as repairing materials. Microsilica was added as pozzolanic additive to enhance the compressive strength of the hardened grouts. Sodium oleate, as water repellent admixture, and different superplasticizers were also incorporated to reduce the water absorption and to enhance the injectability of the grouts. Polycarboxylate ether (PCE), polynaphthalene sulfonate (PNS), melamine sulfonate (MMS) and polyacrylic acid (PA) were tested as plasticizing agents. Regarding the fluidity of the grouts, PCE was seen to improve the injectability, followed by PNS, MMS and PA. However, PCE addition was also accompanied by a severe delay in the setting time. The other three superplasticizers did not provoke significant delays in the hardening of the samples. The water contact angle underwent an increase pointing to an effective hydrophobization of the surface as a consequence of the water repellent admixture. The combination with PCE was the most effective in keeping the water repellency in comparison with the control sample (lime grout + oleate). MMS yielded high compressive strengths and durability of the mortars, in the face of freezing-thawing cycles, was enhanced.

Keywords

Grout; Microsilica; Injectability; Water Repellent

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