

Examining the Impact of Degrees of Slag Replacement on the Carbonation Process of Slag-Blended Cement

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Abstract : This study examines the role of slag in the process of hydration and carbonation of carbonation-cured slag cement. Carbonation-cured slag-blended cement paste samples were prepared with varying slag percentages of 0%, 10%, 30%, and 50%. The curing process lasted for a maximum of 28 days. The findings demonstrated that the carbonation depth increased as the curing period was extended, and a larger slag percentage promoted a more extensive penetration of carbonation. The degree of belite reaction was greatly enhanced in the slag-blended cement, resulting in an increased ability to bind CO₂ in the blended cement. These findings enhance comprehension of the behaviour of blended cement produced through carbonation-curing, facilitating the advancement of more environmentally friendly and long-lasting concrete constructions.

Keywords : carbonation curing, blast furnace slag, characterization, Portland cement

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