

20. Study on the Prediction of Carbonation Progress of Concrete Considering the Aging of Coating Materials for Textured Finishes on Diffusion Theory

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The carbonation progress model of concrete covered with coating materials for textured finishes was examined on diffusion theory. Route-t formula is formed for relations with carbonation term and carbonation depth of that concrete. It was confirmed that the carbonation resistance value to express a carbonation suppressive effects of finish coat materials was calculated by carbonation velocity coefficient and diffusion coefficient of concrete more by diffusion coefficient and coat thickness of coating materials for textured finishes. And the diffusion coefficient of aged coating materials for textured finishes was calculated by devised measurement device of diffusion coefficient, and a theory value of the carbonation resistance was led by that value. It was shown that theory value of carbonation resistance corresponded with experimental value provided by accelerated carbonation test. And it was confirmed that carbonation progress of concrete covered with coating materials for textured finishes was predicted with the diffusion coefficient evaluated by this measurement method.

Key words : concrete, carbonation, coating materials for textured finishes, diffusion coefficient, aging