



Review

Carbonation curing influencing factors of Carbonated Reactive Magnesia Cements (CRMC) – A review



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ABSTRACT

The development of alternative binders to Portland Cement has become a critical factor in decreasing the Portland cement industry's carbon footprint, which nowadays represents about 7% of CO₂ emissions worldwide. Thereby the seek for the development of alternatives binders led to a recent and growing interest in carbonate-based binders due to their ability to capture and store CO₂ into their cementitious matrix and, consequently, leading to the rise of the research related to the scope of this work, Carbonated Reactive Magnesia Cement, which has as the main property the capability to adsorb CO₂ into its cementitious matrix when subject to favourable carbonation curing conditions. Thus, this paper describes the Magnesia carbonation mechanism to subsequently review and enumerate the influencing factors over the carbonation curing of Carbonated Reactive Magnesia Cement-based materials. Afterwards, it summarizes recent works on this binding technology that don't use Portland cement in their composition. Besides that, the carbonation curing conditions used in these studies are highlighted along with this work. Therefore, the main goal of this review is to bring a starting point of the carbonation curing influencing factors of Carbonated Reactive Magnesia Cement-based materials. Thereby, this review may help future research on this field and some issues to be overcome by this material group.

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1. Introduction

The construction materials industry was historically based on a wide range of materials appropriate to local conditions and/or specific needs. Still, after the latter half of the 20th century, such industry has gradually converted itself to Portland Cement-based

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