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Preventing Carbonation from Forming in Tunnel Concrete with the Help of Silicious and Pozolona Materials in Fresh Concrete for Improving Durability and Permeabilty of Lining Concrete

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Abstract: *One important aspect of concrete's durability that the writers of this research have reviewed is its carbonation studies. Carbonation is one of the main reasons why concrete deteriorates and is destroyed. The mechanism of carbonation is the entry of carbon dioxide (CO2) into the porous system of concrete, which creates an environment by lowering the pH near the reinforcement and starting the corrosion process. This paper aims to clarify the significance of carbonation in concrete by examining its chemistry, process, and water/cement ratio, as well as how carbonation is affected by admixtures, curing, depth of concrete cones, grade, strength, porosity, and permeability. The part played by supplemental cementitious materials (SCMs) such as silica and ground-granulated blast furnace slag (GGBS). The review includes an analysis of fume (SF) and the impact of carbonation depth*

Keywords: CO2, carbonation studies, concrete's durability, examining chemistry, process, water/cement ratio

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