



Feasibility and challenges of drinking water Photocatalytic Denitrification Embedded Layer on Ultra-High Performance Concrete

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Abstract

Denitrification of water has been studied over three decades now and many research subject are currently active in this area. Removing nitrates by minimum cost and eco-impact is the main goal of environmental scientists. Using photocatalysts for denitrification is not a new subject but it has still so many unsolved puzzles inside. In this study, the use of two different catalysts in the same bed (Ultra-High Performance Concrete or UHPC) by merging a new thin layer of the same material containing these photocatalysts, helps the maximum efficiency and a long-term performance without washing away the oxides from surface. In this study, the possibility of using Photocatalyst layers on UHPC structural elements like water pipes was evaluated and the challenges of applying such layers on UHPC surfaces were implied.

Keywords: Denitrification, Ultra-High Performance concrete, Photocatalyst, Titanium Oxide