

Service Life Modelling of Concrete Deterioration Due to Biogenic Sulphuric Acid (BSA) Attack-State-of-an-Art-Review

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Abstract : Degradation of Sewage pipes, sewage pumping station and Sewage treatment plants(STP) is of major concern due to difficulty in their maintenance and the high cost of replacement. Most of these systems undergo degradation due to Biogenic sulphuric acid (BSA) attack. Since most of Waste water treatment system are underground, detection of this deterioration remains hidden. This paper presents a literature review, outlining the mechanism of this attack focusing on critical parameters of BSA attack, along with available models and software to predict the deterioration due to this attack. This paper critically examines the various steps and equation in various Models of BSA degradation, detail on assumptions and working of different softwares are also highlighted in this paper. The paper also focuses on the service life design technique available through various codes and method to integrate the service life design with BSA degradation on concrete. In the end, various methods enhancing the resistance of concrete against Biogenic sulphuric acid attack are highlighted. It may be concluded that the effective modelling for degradation phenomena may bring positive economical and environmental impacts. With current computing capabilities integrated degradation models combining the various durability aspects can bring positive change for sustainable society.

Keywords : concrete degradation, modelling, service life, sulphuric acid attack

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