

Reinforcing concrete samples against the attacks of sulfates and salts and comparing the corrosive effects of various environmental factors

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Abstract

Due to the environmental impact of sulphates and salts on concrete and the significant reduction in concrete strength, extensive research has been carried out to reinforce concrete against these types of attacks. The results show that the use of coal ash increases Concrete quality is counteracting the attack of sulfates. The sulfates include calcium sulfate, sodium sulfate, magnesium sulfate, and the like. Sulfate attack in tropical coastal areas with hot and humid weather causes very severe damage. One can refer to ash of cane sugar syrup (bagasse) as one of the most suitable alternatives for cement in concrete. Other materials that can be considered for preventing attack of sulfates include concrete containing carbon nanotubes and shells ash pozzolan Rice. Use of 80% cement, carbon nanotubes and 15% zirconium rice ash in concrete structure improve concrete performance against sulfate attack and corrosion resistance. According to the results of concrete containing nanotube Carbon and pozzolan rice husk has the highest corrosion resistance in the range of 20 to 25 minutes. Do not.

Key words: Sulfate, Rice Shell, Carbon Nanotubes, Ash Pozzolan.

1. Introduction

The impact of destructive factors such as salts, sulfates and chloride ions on the deterioration and reduction of the strength of concrete structures is visible. Impact of atmospheric and environmental damages can be seriously damaged to concrete and reinforced concrete structures. Therefore, retrofitting Concrete sections are necessary against these attacks. On the other hand, cement is one of the important components of various types of mortars and concrete. As we know, the process of cement production causes environmental pollution and hazard inputs. Seriously affects the environment of human life; therefore, it is necessary to try to provide the scientific solutions with the amount of cement used to produce impure concrete Natural and mineral additions such as