ICES 2024

TITLE OF PROJECT:

EXPERIMENTAL INVESTIGATION ON EFFECT OF INHIBITOR ON THE CORROSION RESISTANCE OF SLAG SAND CONCRETE

NAME OF ALL AUTHORS:

Niranjan R Hiretanad, Nikhil D Hethur, P G Harsha, Rathod Sonu

UG Students, Dept. of Civil Engg, Dayananda Sagar College of Engg. Bangalore-560078

NAME OF YOUR MENTOR:

R Shanthi Vengadeshwari

Assoc.Professor, Dept. of Civil Engg, Dayananda Sagar College of Engg. Bangalore-560078

NAME OF YOUR COLLEGE:

DAYANANDA SAGAR COLLEGE OF ENGINEERING, BANGALORE-5600078

ABSTRACT (150-300 words):

The concern about the increasing demand for construction aggregates and the depletion of natural resources has led to a growing interest in exploring alternative approaches and substitutes. The global requirement for aggregates has shown a growth rate of 6.4% in the year 2021 totaling to 20.8 billion tons of aggregate extraction and will witness a compound annual growth rate of 6.8% over the period of 2021-2031.Several potential alternatives are being investigated to address the challenges associated with the scarcity of natural aggregates. Managing waste in an environmentally friendly, socially responsible, and techno-commercially viable manner is of crucial importance in the steel manufacturing process. JSW, the major steel plant in the country generates large amount of slag which remains unutilized. When crushed and processed, slag can be used as a component in concrete. It is sometimes utilized as a replacement for traditional sand or gravel in various construction projects. This helps in recycling a byproduct of industrial processes and reducing the environmental impact associated with the disposal of steel industry waste. Corrosion of steel in reinforced concrete structures is a significant and widespread issue.

Reinforced concrete is a widely used construction material because of its strength and durability. However, the steel reinforcement within the concrete is vulnerable to corrosion, which can compromise the structural integrity of the entire system. There are two main types of corrosion that affect steel in reinforced concrete: chloride-induced corrosion and carbonation-induced corrosion. Inhibitors prevent corrosion which can be used as admixtures or anti corrosion coating. This project work is intended to explore the effect of inhibitors on the corrosion resistance of slag sand concrete. From the results we will be able to assess the behaviour of sustainable concrete made of slag sand and its corrosion resistance which is a major concern in the construction industry.

KEYWORDS: Slag sand, corrosion, inhibitors, chlorides, carbonation

CATEGORY: Concrete Technology and Building Materials