**Electrochemical Monitoring and Control of Corrosion in TMT Reinforced Concrete Structures**

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**Abstract:**

Corrosion of steel reinforcement in reinforced concrete structures is a major concern in construction domain due to its detrimental effects on structural integrity and durability. This study presents recent advancements in the field of electrochemical monitoring and control techniques for corrosion in thermo-mechanically treated (TMT) reinforced concrete structures. Electrochemical monitoring offers a non-destructive and real-time assessment of corrosion activity in reinforced concrete. This investigation discusses the utilization of techniques such as Open circuit potential (OCP), linear polarization resistance (LPR), and electrochemical impedance spectroscopy (EIS), weight loss (WL) to quantify the corrosion rate, detect the onset of corrosion, and assess the corrosion severity in TMT reinforced concrete structures. The integration of these techniques with advanced data acquisition systems and remote monitoring technologies enables continuous monitoring of corrosion activity, allowing timely maintenance interventions. Moreover, the study highlights the development of electrochemical control strategies to mitigate corrosion in TMT reinforced concrete structures. The investigation also emphasizes the importance of electrochemical monitoring and control in TMT reinforced concrete structures to enhance their service life and prevent premature deterioration. It showcases the potential of discussed techniques to provide valuable insights into corrosion mechanisms, optimize maintenance strategies, and ensure the long-term durability of infrastructure. Overall, this study demonstrates the significance of electrochemical monitoring and control as effective tools for combating corrosion in TMT reinforced concrete structures, ultimately contributing to the sustainable development of infrastructure.

**Keywords:** Corrosion, TMT, corrosion control