

**SYNTHESIS, CHARACTERIZATION AND ANTI CORROSION
SCREENING OF Bi(III) THIACTAZONE COMPLEX**

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ABSTRACT

SYNTHESIS, CHARACTERIZATION AND ANTI CORROSION SCREENING OF Bi(III) THIACTAZONE COMPLEX

Bi(III) thiactazone complex, $[\text{Bi}(\text{TAC})\text{Cl}]\text{Cl}_2$ was successfully synthesis by using reflux method with methanol solvent. The complex was characterized by melting point, Fourier Transform Infrared (FTIR), Ultraviolet-Visible (UV-Vis), elemental analysis (CHNS), gravimetric analysis and molar conductivity. The complex formed was bright yellow colour and the melting point of complex is 231-233 °C. While, the percentage yield of complex is 79%. The colour changes from light yellow to bright yellow showed the reaction between ligand and metal. From the characterization, the ligand was coordinated to Bi(III) ion through azomethine N and carbonyl O as the stretching band of FTIR were shifting to the higher wavenumber compared with the ligand. The percentage of metal in gravimetric analysis calculated was 39.7% and the molar conductivity conducted was 1:1. The UV-Vis absorption, $h\nu$ showed two types of transition, $\pi \rightarrow \pi^*$ and $n \rightarrow \pi^*$ which are proved there was coordination occurred between TAC and Bi(III) ion since there are shifting. TAC and $[\text{Bi}(\text{TAC})\text{Cl}]\text{Cl}_2$ was used in the corrosion inhibitor study and found that the ligand are more suitable as corrosion inhibitor for mild steel compare to the complex synthesis. The inhibition increased as the concentration of inhibition increased.