

**SYNTHESIS, CHARACTERIZATION AND ANTI-CORROSION
SCREENING OF Ni(II) THIACTAZONE COMPLEX**

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ABSTRACT

SYNTHESIS, CHARACTERIZATION AND ANTI-CORROSION SCREENING OF Ni(II) THIA CETAZONE COMPLEX

Nickel(II) thiacetazone complex, (Ni(TAC)(NO₃)) was successfully synthesized by condensation method. The complex was characterized by Fourier Transform Infrared (FT-IR), Ultraviolet-Visible (UV-Vis), elemental analysis (CHNS), gravimetric analysis and molar conductivity. The complex formed was dark green in color compared to pale yellow of TAC. It showed there are reaction between ligand and metal. The melting point of the complex was higher than ligand as expected from 230 °C to 250 °C. The FT-IR spectra data implied a tridentate bonding of thiacetazone to Ni(II) ion through azomethine nitrogen (3329.01 cm⁻¹), thiolate sulphur (835.82 cm⁻¹) and carbonyl oxygen (1698.67 cm⁻¹). The UV-Vis analysis showed two types of transition which are $\pi \rightarrow \pi^*$ and $n \rightarrow \pi^*$ in ligand and complex. The spectra proved there was coordination to metal ions since there are shifting. It also showed *d-d* transition at the band of >400 nm in UV-Vis spectra. The result for the elemental analysis were in a good agreement with the theoretical value. The gravimetric analysis showed the percentage of Ni(II) was 14.32%. The molar conductivity result showed Ni(II) complex was non-electrolyte with formula of Ni(TAC)(NO₃). The corrosion inhibition study showed that the inhibition efficiency of the ligand was higher than Ni(II) complex in both H₂SO₄ and HCl solution. Observed that the inhibitor efficiency increase when the inhibitor concentration increase.