

**Synthesis, Investigation of Acid Base Properties and Carbon Dioxide Trapping Capability of Nickel-1,2-diaminobenzene-2,4-pentanedione Complex**

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Nickel-1,2-diaminobenzene-2,4-pentanedione complex was synthesised by the template synthesis method. It was characterised by UV-visible spectroscopy, cyclic voltammetry and FT-IR techniques. The CO<sub>2</sub> trapping capability of this complex was studied by VenireLabPro CO<sub>2</sub> Gas Sensor by measuring the amount of CO<sub>2</sub> transmitted through the Ni complex and the starting material, nickel acetate, in an ethanolic solution. Sixty percent CO<sub>2</sub> was absorbed by the complex as compared to the starting material. The UV-Visible spectrum of the Ni(II) complex in ethanol showed bands at 269 nm, 393 nm and 583 nm. These bands disappeared and new bands were formed giving isobestic points around 625 nm, 240 nm, 260 nm and 290 nm on the stepwise addition of H<sup>+</sup> to the solution. Cyclic voltammetry analysis was carried out to understand the catalytic activity of the Ni(II) complex towards CO<sub>2</sub>. Under N<sub>2</sub> atmosphere, the Ni(II) complex showed a reversible band corresponding to the Ni(II)/Ni(I) redox couple. This band was shifted towards the positive direction in the presence of CO<sub>2</sub>.