821/E2

Carbon dioxide trapping capacity of the N,N'-ethylenebis(acetylacetoniminato) Nickel(II) hemihydrate complex

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N,N-ethylenebis(acetylacetoneiminato)Nickel(II) hemihydrate complex was synthesized by using template synthesis and characterized using single crystal X-ray analysis, UV visible spectroscopy, cyclic voltammetry and FTIR techniques. The CO_2 trapping capacity was studied with a Vernier CO_2 gas sensor which is capable of measuring the transmitted amount of CO_2 (in ppm) from a sample within specific period of time (in seconds). At room temperature, the complex shows ~ 35% more CO_2 absorption than the starting material, nickel acetate and the absorption capacity is not sensitive to the amount of complex present. When the temperature goes down to 4-5 °C the CO_2 absorption depends on the amount of complex present in the medium showing about 50% more CO_2 absorption than nickel acetate of the same concentration. The presence of new bands around 2900 cm^{-1} in the FTIR spectra of solid samples of the complex after passing CO_2 provides clear evidence for the trapping of CO_2 by the complex.

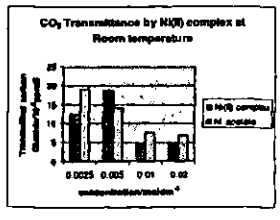

Fig.1 CO_2 transmittance by the various Concentrations of Ni(II) complex at RT.

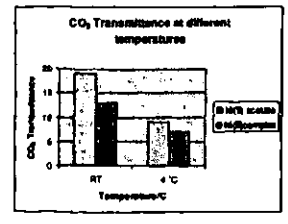

Fig.2 CO_2 transmittance for 0.0025 M solutions at RT and 4 °C

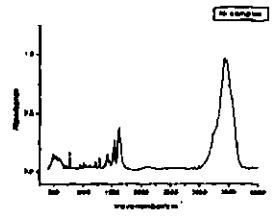

Fig.3 FTIR spectrum of synthesised Ni (II) complex before passing CO_2

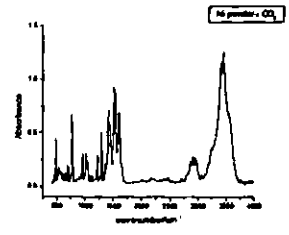

Fig .4 FTIR spectrum of Ni(II)complex after passing CO_2

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