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Non-Extractive Spectrophotometric Determination of Nickel In Alloy Samples Using Salicylaldehyde Isonicotinoylhydrazone

M.Renuka, V.Saleembhasha and K. Hussain Reddy*

*Department of Chemistry, Sri Krishnadevaraya University, Anantapur–515 003, **INDIA**

Email: malyamrenuka@gmail.com

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ABSTRACT

A very simple, highly selective and non - extractive Spectrophotometric method for the trace amounts of nickel (II) has been developed. Salicylaldehyde isonicotinoylhydrazone (SAINH) has been proposed as a new analytical reagent for the direct non- extractive Spectrophotometric determination of nickel (II). The reagent reacts with nickel in a basic medium (pH 7.5, sodium acetate and acetic acid) to form a yellow coloured 1: 1(M : L) complex. The reaction is instantaneous and the maximum absorption was obtained at 385 nm and remains stable for 1h. The molar absorptivity and Sandell's sensitivity were found to be 1.81 x 10^4 L mol^{-1} cm^{-1} and 0.32 µg cm^{-2} respectively. Linear calibration graphs were obtained for 1.0 -10.0 µg ml^{-1} of nikel(II). The method is highly selective for nickel and successfully used for the determination of nickel in several standard reference materials (steels and alloys).

Keywords: Spectrophotometric determination, salicylaldehyde isonicotinoylhydrazone, alloy and steel samples, molar absorptivity and Sandell's sensitivity.