

Differential electrolytic potentiometric detector in flow injection analysis for cyanide determination. Taufiq, A. S.; Abulkibash, A. M. S.. Chem. Dep., King Fahad University for Petroleum and Minerals, Dhahran, Saudi Arabia. Journal of Flow Injection Analysis (2007), 24(1), 9-12. Publisher: Nippon Bunseki Kagakkai Furo Injekushon Bunseki Kenkyu Kondankai, CODEN: JFIAEA ISSN: 0911-775X. Journal written in English. CAN 147:547333 AN 2007:1286998 CAPLUS (Copyright (C) 2008 ACS on SciFinder (R))

Abstract

A simple differential electrolytic potentiometry (DEP) is coupled with the flow injection anal. (FIA) for the total cyanide detn. This simple and rapid method is based on the reaction of a silver nitrate with cyanide to form silver cyanide complex. Potassium nitrate was used as a supporting electrolyte. Platinum, gold and silver electrodes were tested and among them silver amalgam was found to be a suitable indicating system. The optimum c.d. for polarizing the electrodes was found to be 10-17 $\mu\text{A}/\text{cm}^2$. The sensitivity of the proposed method was further enhanced by shortening the coil length. The effect of flow rate and the vol. of reagents and sample on the sensitivity of the method were also studied. The interference of chloride, iodide, sulfate, carbonate, phosphate, chromium, cobalt, nickel and cadmium were studied. Linear working range is from 1 ppm to 60 ppm. The detection limit is 0.5 ppm with a sample through put of 10 samples/h and the correlation coeff. is 0.999. The equation for potential measurement was: [Potential (V) = 0.24 + 0.0091 \times C (ppm)]. The described FIA-DEP has the addnl. advantages, over the other methods, of minimizing time and amt. of consumed reagents and improving the accuracy of the anal. due to computer control.