



Research Article



Development of Macrocyclics based Electrochemical Sensors for Copper

Sumalatha Donthula

Corresponding Author:

sumalatha-
donthula@yahoo.co.in

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ABSTRACT

The fabrication of a PVC membrane sensor and a carbon paste sensor for copper are discussed in detail in this chapter. The different performance characteristics of the developed sensors including concentration range, slope, detection limit, response time, pH range and shelf life have been explained in detail. The electrode has a fast response time and showed high selectivity for copper over a number of interfering ions. The present study has covered the applicability of the newly developed sensors as an indicator electrode in the potentiometric titration of Cu^{2+} ions against EDTA and also for the determination of Cu^{2+} ions in effluent samples. The ISE was also used for determination of copper in electroplating bath solutions, alloy sample, battery waste samples and effluent waters. The membrane electrode has also been successfully used to determine Cu^{2+} in real samples.

Keywords: PVC, Sensor, EDTA, Potentiometric titrations and electroplating.

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