Short Communication

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Ion-selective electrodes: As a tool for electrochemical sensor applications

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Abstract

Chemical Sensors are used for monitoring structural integrity of reactor containment buildings and nuclear waste repository, control of nuclear power plants, pollution monitoring and leakages of toxic gases/chemicals. Present work is based on developing ion selective electrodes (ISEs) based on PVC membrane, which includes Schiff base ligands and their complexes, macrocyclic ligands as ionophores for sensing different metal ions. Ion selective electrodes have been prepared and the electrodes performance was optimized by varying the amounts of PVC, plasticizers, ionophores and cation/anion excluders. Various characteristic features of these proposed chemical sensors with different parameters such as response time, selectivity, lifetime and pH effect on sensor response have been studied. The semicarbazide and thiosemicarbazide based Schiff base ligands and their metal complexes have been synthesised and used for the fabrication of electrochemical sensors or ion- selective electrodes. The proposed ISEs were successfully applied for the determination of various cations and anions in water samples and also as an indicator electrode in potentiometric titrations.

Biography

Dr. Chandra Mohan obtained his Ph.D degree in the field of "Schiff based metal complexes and their applications as Chemical Sensors" from Guru Gobind Singh Indraprastha University, Delhi, India. He has done M.Phil in Inorganic Chemistry from Delhi University and performed his research work on "Heteropoly acid intercalated clays as catalysts" in 2009. He has keen interest in research and development activities. He has 6 years of teaching experience and about 8 years of research experience. He has published 10 research papers in reputed journals and has presented 10 research papers in various conferences and workshops held in India. He is an awardee of a national fellowship from University Grant Commisiion Delhi for his Ph.D. degree. He was also invited for a lecture from Sensor Lab, University of the Western Cape, Bellville, South Africa in May 2015 and as keynote speaker in the International conference at Imperial College London, UK in September 2018. Presently he is a reviewer & editorial member of 7 International Journals and 8 scientific bodies in India and abroad.

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