

DETERMINATION OF INORGANIC IONS IN HYDRO-GEOCHEMICAL SAMPLES FROM ANDHRA PRADESH BY ION CHROMATOGRAPH

Beena Sunilkumar*, D. Prasada Rao and V. Padma Subashini

Chemistry Group, A.M.D, Hyderabad

**E-mail: beena.amd@gov.in, beenasunilkumar@gmail.com*

Abstract

Ion chromatography is a widely used technique for determination of ionic species in water samples. Although major application of ion chromatography is in the field of environmental analysis, the technique can also be used for analysis of hydro-geochemical i.e water samples generated during the course of geo-chemical exploration for uranium to determine several inorganic anions and cations. Hydro-geochemical surveys are used for identifying the target areas of unconformity-related uranium mineralization. In the present work, ion chromatography with suppressed conductivity detection was used for the determination of anions with a mixture of sodium carbonate and sodium bicarbonate mobile phase. The cations were determined with nitric acid mobile phase with dipicolinic acid without a suppressor column. The retention time of cations was reduced by concentrating the mobile phase from the recommended 1.7mM HNO₃ and 0.7mM Dipicolinic acid, which saves time of analysis. Various inorganic ions in hydro-geochemical samples were determined in several uranium exploration samples by ion chromatography. The accuracy of analytical results was verified by analyzing the samples using standard procedures. Results obtained by the present method are in good agreement with those obtained using alternate methods.

Keywords: Ion Chromatography, Environmental Analysis, Hydro-Geochemical Surveys, Uranium Mineralisation.