

Constructing and Building–up a home Made Semi-automated Ion Chromatography

Abstract :

Ion Chromatography (IC) is a chromatographic separation and measurement of ionic species. This technique combines an ion – exchange chromatographic separation with simultaneous conductometric detection for the determination of anions, cations and other ionic species. Single – column IC system equipped with a conductivity detector and with a home-made flow cell 12.5 μ l sample volume was constructed and build-up from simple and inexpensive parts readily available in our analytical laboratories. The approach of single-column IC instrumentation depends on the small differences in the conductivity between sample ions and the prevailing eluent. To amplify these differences, low capacity exchangers are used for the home-made separation column (3 mm ID and 300 mm length) which permit elution with low electrolyte concentration. The home-made single column IC has been applied to separate and determination of 25 μ l of injecting, anions (F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, SO₄⁻² and PO₄⁻²) and cations (Li⁺, Na⁺, K⁺, NH₄⁺). The accuracy of the method was examined by performing a recovery experiment using standard addition method. The results were compared and good agreement was obtained (94.28-100.58) %.