

Abstract

Interference by foreign ions in direct titrimetric determination of sulphate with barium perchlorate using dimethylsulphonazo III (DMSA III) as indicator were studied in this research project.

The use of certain water miscible solvents as titration medium has enhanced the determination of end-point. Among the methanol, ethanol, n-propanol and acetone used in the investigation, it was found that medium containing 40 to 50 % n-propanol or acetone delivered distinct end-points.

The effects of nine cations and eight anions were studied in the above sulphate titration. It was found that the interference caused by Li^+ , Na^+ , K^+ , Mg^{2+} , Mn^{2+} , Cd^{2+} , NH_4^+ , Cl^- and Br^- are not significant. On the other hand, the presence of Cs^+ , Al^{3+} , F^- , I^- , SCN^- , BrO_3^- , NO_3^- and PO_4^{3-} in the system caused erroneous results. Among all the ions studied, phosphate caused the strongest interference.

A method for the determination of sulphate in the presence of phosphate, whereby magnesium perchlorate was used to remove the phosphate interference, was also developed in this project.