

A Comparative Study of 8-Hydroxyquinoline and 8-Hydroxyquinoline-5-sulfonic Acid for Antimony(III) Determination by AdSV. Substituent Effect on Sensitivity II

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Abstract

A sensitive and selective method for the determination of Sb^{3+} based on the formation of its complexes with 8-hydroxyquinoline (HQ) and 8-hydroxyquinoline-5-sulfonic acid (HQS) is proposed. The best analytical conditions are: pH 5.4 and 2.2 for HQ and HQS, respectively; C_{HQ} from 15.0 to 25.0 $\mu\text{mol L}^{-1}$ and C_{HQS} from 70.0 to 200.0 $\mu\text{mol L}^{-1}$. The detection limits are 100.0 and 14.0 ng L^{-1} ($t_{\text{acc}}=30$ s) for Sb^{3+} with HQ and HQS, respectively. The method using HQS as ligand has a 2.2-fold higher sensitivity than that with HQ and the former was chosen for Sb^{3+} determination.