

论文

用Cu-PAN系统作EDTA对钙、钡、镁、铝、铬、锌、铁、铅、铋、汞、铜等化合物的测定

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摘要:

本文重新研究了EDTA络合量法中用Cu-PAN系统滴定

Ca⁺⁺, Ba⁺⁺, Mg⁺⁺, Al⁺⁺⁺, Cr⁺⁺⁺, Zn⁺⁺, Fe⁺⁺⁺, Pb⁺⁺⁺, Bi⁺⁺⁺, Hg⁺⁺, Cu⁺⁺等的pH、温度、指示剂用量等条件,测定准确度为1%。建立了用Cu-PAN系统滴定铬盐及钼盐的方法,测定终点较用铬黑T指示剂明显。测定了Cu-PAN络合物的组成为1:1,稳定常数为:pH2, 1.4×10⁶; pH4, 1.9×10⁶; pH 6, 1×10⁵; pH 8, 7.5×10⁴; pH 10, 2.1×10⁵。根据这些结论,改进了Cu-PAN系统的滴定方法。

关键词:

DETERMINATION OF Ca⁺⁺, Ba⁺⁺, Mg⁺⁺, Al⁺⁺⁺, Cr⁺⁺⁺, Zn⁺⁺, Fe⁺⁺⁺, Pb⁺⁺, Bi⁺⁺⁺, Hg⁺⁺, Cu⁺⁺ BY EDTA TITRATION USING Cu-PAN SYSTEM

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Abstract:

The application of Cu-Pan system EDTA titration of some cations was reinvestigated systematically. The influence of various factors such as pH, temperature, quantity of indicator used, was studied in some detail. The stability constants of Cu-PAN complex were found to be 1.4×10⁶, at pH 2; 1.9×10⁶, at pH 4; 1×10⁵, at pH 6; 7.5×10⁴, at pH 8; and 2.1×10⁵, at pH 10. Based upon the above observations an improved method was suggested as follows: Dissolve a certain amount of salt sample in distilled water or dilute hydrochloric acid to make a solution of about 0.02 M. in concentration. Pipette 10 ml. of this solution accurately into a beaker. Add 5 ml. of acetate buffer or other suitable buffer as required for the specified sample. About 20% excess of standard disodium EDTA solution is added and then 10—15 ml. of alcohol. Titrate with 0.02 M. standard Cu⁺⁺ solution until the color of the solution changes from yellow to orange red, using 5—10 drops of 0.1% of methanolic solution of PAN as indicator. The method gave a more distinct end point in determination of Ba⁺⁺ and Cr⁺⁺⁺ in comparison with the method using Eriochrome black T as indicator.

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