KYOTO ELECTRONICS MANUFACTURING CO., LTD.

TIC-01032enL

Application Memo Purity of Ammonium Chloride

Industry	Pharmaceutical
Instrument	automatic potentiometric titrator
Measurement method	Acid base titration
Standards	

1. Overview

Purity of ammonium chloride is measured based on JIS K 8116-2006 "Ammonium chloride". The sample is dissolved in mixture of water and 25mL formaldehyde neutralized with 0.1mol/L standard sodium hydroxide, and 1mol/L standard sodium hydroxide is dosed to the equivalence point. After left for an hour, titrate again with 1mol/L standard sodium hydroxide up to the equivalence point. The equivalence point is the maximum point of inflection.

The ammonium concentration is calculated from the titrated volume of 1mol/L standard sodium hydroxide including fixed dose, and the purity is obtained.

 $\begin{array}{l} NH_4Cl + NaOH + H_2O \longrightarrow \quad NH_3^+ + H_3O^+ + Na^+ + Cl^- + OH^-\\ NH_4^+ + OH^- \swarrow \qquad NH_3^+ + H_3O^+\\ HCHO + NH_4^+ + OH^- \longrightarrow \qquad NH_3^+ + CHO^- + H_3O^+\\ H_3O^+ + NaOH \longrightarrow \qquad Na^+ + H_2O \end{array}$

2. Apparatus

Main unitAutomatic potentiometric titrator (preamplifier STD)ElectrodeCombined glass electrode

3. Reagents

Titrant 1mol/L and 0.1mol/L standard sodium hydroxide

Solvent

Neutral formaldehyde diluent 0.1% phenolphthalein

4. Example



—Measurement results—				
	Sample	Titer		
	(g)	(mL)	(%)	
1	1.5036	27.9327	99.466	
2	1.5003	27.8725	99.470	
3	1.5040	27.9556	99.522	
Average			99.49	
SD			0.031	
RSD(%)			0.031	

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