KYOTO ELECTRONICS MANUFACTURING CO.,LTD.

TIN-01050enL

Application Memo

Ferrous Salt in Etchant

Industry	Iron and steel
Instrument	Automatic potentiometric titrator
Measurement method	Redox titration
Standards	

1. Overview

When an etchant sample does not contain chloride ion, after adding sulfuric acid to a sample, the ferrous salt concentration is measured by titration with 0.01mol/L potassium permanganate solution.

$10FeSO_4 + 2KMnO_4 + 8H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 5Fe_2(SO4)_3 + 8H_2O$

In this application memo, as the sample contains chloride ion, add manganese sulfate to avoid an interference reaction before titration.

If a sample contains too much chloride ion, remove most hydrogen chloride by concentrating by vacuum evaporation.

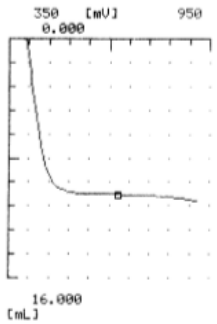
2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	Combined platinum electrode

3. Reagents

Titrant	0.01mol/L (0.05N) potassium permanganate solution
Solvent	Manganese sulfate (Crystalline manganese sulfate, Phosphoric acid, Sulfuric acid)

4. Example



—Titration curve—

—Measurement results—

	Sample (g)	Titer (mL)	$FeCl_2$ (%)
1	0.5163	10.6041	13.11
2	0.5199	10.4438	12.82
3	0.5096	10.5516	13.21
Average			13.05
SD			0.20
RSD(%)			1.6

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