KYOTO ELECTRONICS MANUFACTURING CO.,LTD.

TIQ-97052enL

Application Memo

Tin (Sn^{2+}) in Soldering Fluid

Industry	Inorganic chemical industry
Instrument	Automatic potentiometric titrator
Measurement method	Redox titration
Standards	

1. Overview

Solder with less tin (Sn^{2+}) content is used for rust prevention, and solder with more than 49% tin is used for spare soldering or micro fabrication such as lead frame.
Low melting point solder is the alloy of tin (Sn^{2+}) and lead (Pb^{2+}). Lead in the solder is has been replaced by other metals, but tin (Sn^{2+}) does not change as a major component, and the analysis of its concentration is important in quality control.
Here in this application, we demonstrate how the equivalent point is detected by redox titration where bivalent tin (Sn^{2+}) and iodine (I_2) react and produce quadrivalent tin (Sn^{4+}).

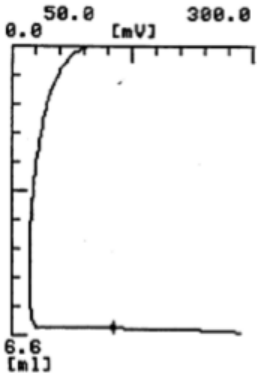
2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	Platinum electrode Ceramic reference electrode (Internal solution: 3.33M potassium chloride)

3. Reagents

Titrant	0.05mol/L iodine
Solvent	6mol/L hydrochloric acid Potassium sodium tartrate (1g/6mL H_2O) Sodium hydrogen carbonate (1g/20mL H_2O)

4. Example



—Titration curve—

—Measurement results—

	Sample (mL)	Titer (mL)	Concentration (g/L)
1	1.0	6.4656	38.37
2	1.0	6.4396	38.22
3	1.0	6.3529	37.70
Average			38.10
SD			0.35
RSD(%)			0.92

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