

Application Memo

Total Sodium Hydroxide, Free Sodium Hydroxide, and Aluminum of Etchant

Industry	Inorganic chemical industry
Instrument	Automatic potentiometric titrator
Measurement method	Acid-base titration

1. Overview

After adding sodium gluconate to the diluted sample, it is titrated with 0.3mol/L hydrochloric acid solution. The endpoint is the maximum inflexion on the titration curve. The total sodium hydroxide concentration is calculated from the titration volume of hydrochloric acid. After adding 10W/V% potassium fluoride solution to the measured sample, it is titrated with 0.3mol/L hydrochloric acid solution again. The second endpoint is the maximum inflexion on the titration curve. The free sodium and aluminum concentrations are calculated from the titration volumes of hydrochloric acid at both endpoints.

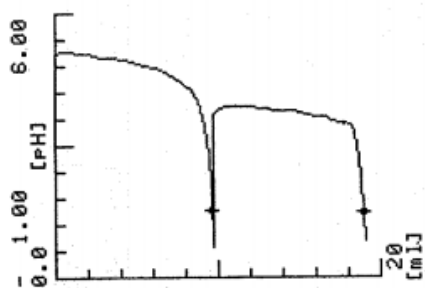
2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	pH glass electrode Ceramic reference electrode Temperature compensation electrode

3. Reagents

Titrant	0.3mol/L hydrochloric acid solution
Solvent	Pure water
Additive	Sodium gluconate, 10W/V% potassium fluoride solution

4. Example



-Titration curve-

-Measurement results-

	Total sodium hydroxide (g/L)	Free sodium hydroxide (g/L)	Aluminum (g/L)
1	116.6	1.692	25.08
2	116.7	1.652	25.14
3	117.1	1.732	25.19
Average	116.8	1.692	25.14
SD	0.3	0.041	0.05
RSD(%)	0.3	2.4	0.2

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