

Application Memo

Concentration of Hydrochloric Acid (II)

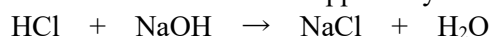
| | |
|--------------------|-----------------------------------|
| Industry | Inorganic chemical industry |
| Instrument | Automatic potentiometric titrator |
| Measurement method | Conductometric titration |
| Standards | |

1. Overview

Conductometric titration, also known as conductometry, is a titration in which electrical conductance of a solution is measured during the titration. This titration method is applicable to other titration such as acid-base, precipitation, oxidation-reduction or complex titration. In the reaction involving the effect of electrolyte, electrical conductance of a solution will change as a reaction is in process and the tendency of the change will alter after passing through the equivalence point.

In this application memo, first prepare 1mol/L diluted hydrochloric acid and titrate this acid sample with 1mol/L sodium hydroxide to the equivalence point using an automatic potentiometric titrator and a preamplifier for conductometric titration to calculate the concentration of hydrochloric acid.

The equivalence point is the point on the titration curve at which the tendency of change in electrical conductance varies apparently.



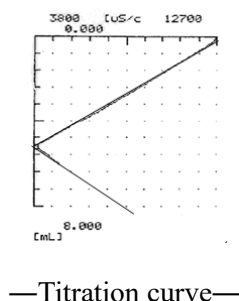
2. Apparatus

| | |
|-----------|--|
| Main unit | Automatic potentiometric titrator (preamplifier CMT) |
| Electrode | Conductivity cell |

3. Reagents

| | |
|---------|----------------------------------|
| Titrant | 1mol/L sodium hydroxide solution |
|---------|----------------------------------|

4. Example



—Measurement results—

| | Sample size (mL) | Titer (mL) | Concentration (%) |
|---------|---------------------|---------------|----------------------|
| 1 | 5.000 | 5.2135 | 1.043 |
| 2 | 5.000 | 5.1847 | 1.037 |
| 3 | 5.000 | 5.2189 | 1.044 |
| Average | | | 1.041 |
| SD | | | 0.004 |
| RSD(%) | | | 0.4 |

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