

Application Memo

Chlorine Ion in Concrete

Industry	Ores
Instrument	Automatic potentiometric titrator
Measurement method	Precipitation titration
Standards	Japan Concrete Institute JCI-SC5, JCI-SC6

1. Overview

Quantification of chlorine ion (Cl^-) in hardened concrete is determined by potentiometric titration using the chlorine ion selective electrode and the mercury sulfate reference electrode, referring to the test methods of the above standards. After 2mol/L nitric acid and 30% hydrogen peroxide solution are added to the sample, leave it to cool to room temperature, and add 0.005mol/L sodium chloride. Titrate with 0.005mol/L silver nitrate up to the endpoint, which is the maximum inflexion point on the titration curve. The chlorine ion is calculated from the titration volume of silver nitrate.

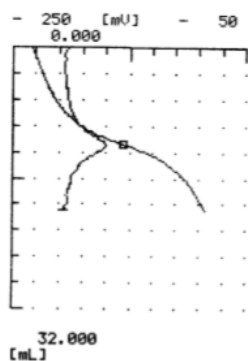
2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier STD)
Electrode	Chlorine ion selective electrode Mercury sulfate reference electrode

3. Reagents

Titrant	0.005mol/L silver nitrate solution
Solvent	Pure water
Additive	2mol/L nitric acid, 30% hydrogen peroxide, 0.005mol/L sodium chloride solution

4. Example



—Titration curve—

—Measurement results—

	Sample (g)	Titer (mL)	Chlorine ion (ppm)
1	2.0167	11.9358	605.46
2	2.0119	11.9718	610.10
3	2.0089	11.9196	606.37
Average			607.31
SD			2.46
RSD(%)			0.404

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<Contact> Kyoto Electronics Manufacturing Co., Ltd.

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