

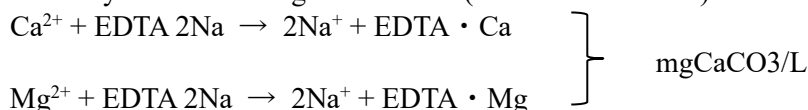
## Application Memo

# Total Hardness of Tap Water

Industry	Environmental
Instrument	Automatic potentiometric titrator
Measurement method	Chelatometric titration
Standards	JIS K 0101, ASTM D 1126, ISO 6059

## 1. Overview

Total hardness of tap water means calcium carbonate in mg/L equivalent to calcium ion and magnesium ion in water. According to JIS K 0101-1998, ASTM D 1126-96 and ISO 6059:1984, it is measured by chelatometric titration with EDTA 2Na solution. The automatic potentiometric titration goes on using the photo sensor (Photometric titration) to the endpoint. The titration volume is converted to calcium carbonate to obtain total hardness. The endpoint is determined by the color change of the EBT (Eriochromeblack T) indicator from red to blue.



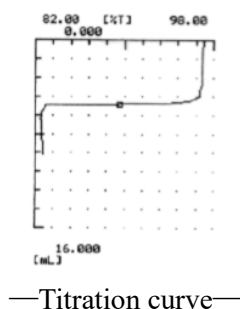
## 2. Apparatus

Main unit	Automatic potentiometric titrator (preamplifier PTA)
Electrode	Photometric sensor Interference filter (630nm)

## 3. Reagents

Titrant	0.01mol/L EDTA2Na solution
Additive	100g/L potassium cyanide solution 100g/L hydroxylammonium chloride solution Ammonium chloride -Ammonia buffer (pH10)
Indicator	EBT (Eriochromeblack T)

## 4. Example



—Measurement results—

	Sample (mL)	Titer (mL)	Total hardness (mgCaCO <sub>3</sub> /L)
1	150.0	5.5235	36.86
2	150.0	5.4821	36.58
3	150.0	5.4509	36.38
Average			36.61
SD			0.24
RSD(%)			0.66

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