



ZA3000

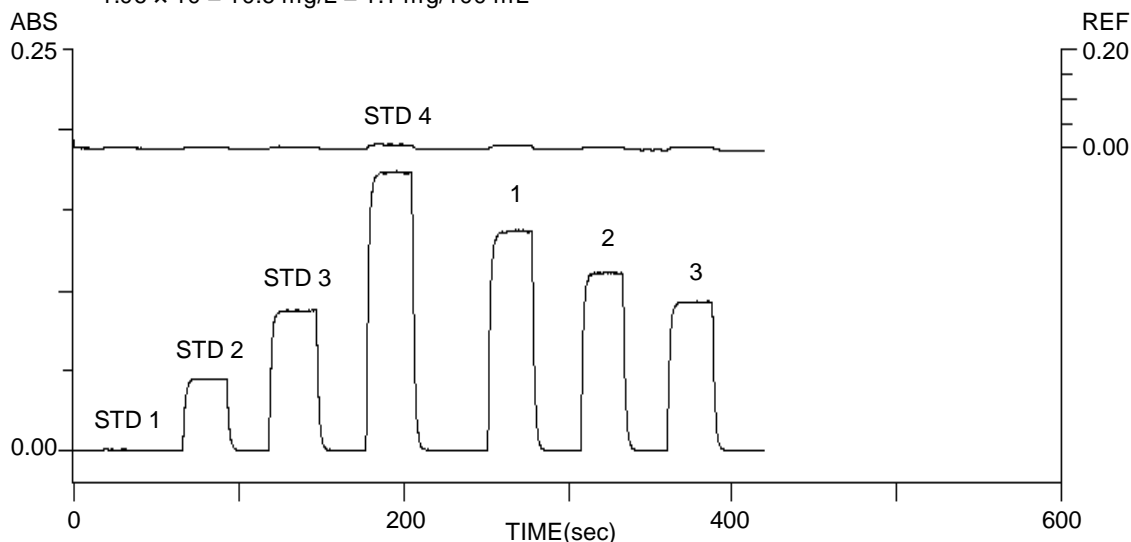
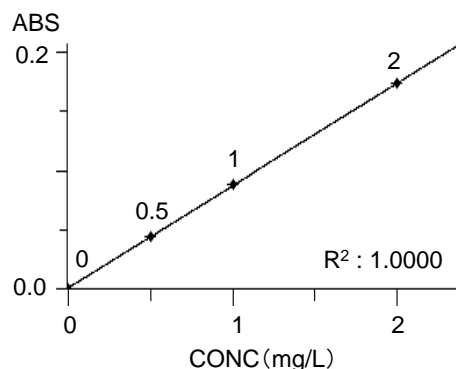
Analysis of Ca in Mineral Water (Flame Method)

INTRODUCTION: Calcium, a main mineral component contained in mineral water, is an essential element for humans and a nutrient necessary for bone formation. ZA3000 series instruments employ the polarized Zeeman method for BKG corrections even for the flame method and thus, provide accurate BKG corrections and stable baselines even at long wavelengths (longer than 400 nm). The co-existing salts cause ionization interferences when calcium is analyzed by the flame method. However, by adding lanthanum as the ionization suppression agent, the analysis without the interference by the co-existing salts is possible.

INSTRUMENT CONDITIONS		MEASUREMENT PARAMETERS
Element : Ca	Atomizer : STD Burner	Meas. Mode : Working Curve
Instrument : ZA3000	Flame : Air-C ₂ H ₂	Signal Mode : BKG Corrected
Atomization : Flame	Fuel (C ₂ H ₂) : 2.2 L/min	Curve Order : Linear
Wavelength : 422.7 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 7.5 mA	15.0 L/min	Time Constant : 1.0 sec
Slit Width : 1.3 nm	Burner Height : 7.5 mm	Calculation Time: 5.0 sec
		Delay Time : 5 sec

NOTE : As the agent to suppress the ionization interference, lanthanum chloride was added to have the La concentration of 1000 mg/L in the solution for the measurement and the measurement was performed. Sample No.1 diluted to 50 times and Samples No.2 and No.3 diluted to 10 times were used for the measurement.

	CONC (mg/L)	Mean ABS	SD	RSD	REF
STD 1	0.00	0.0003	0.0001	33.33 %	-0.0001
STD 2	0.50	0.0445	0.0000	0.00 %	0.0018
STD 3	1.00	0.0878	0.0001	0.11 %	0.0034
STD 4	2.00	0.1737	0.0001	0.06 %	0.0071
1	1.58	0.1373	0.0000	0.00 %	0.0045
	1.58 × 50 = 79.0 mg/L = 7.9 mg/100 mL				
2	1.28	0.1113	0.0001	0.09 %	0.0028
	1.28 × 10 = 12.8 mg/L = 1.3 mg/100 mL				
3	1.06	0.0930	0.0000	0.00 %	0.0014
	1.06 × 10 = 10.6 mg/L = 1.1 mg/100 mL				



KEY WORDS

Bio/Medical Science/Food/Pharmaceutical, Food, Food Chemistry, Food Component, Mineral Water, Calcium, Ca, Flame, AA, ZA3000

Atomic Absorption Photometer
(AA)

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