



ZA3000

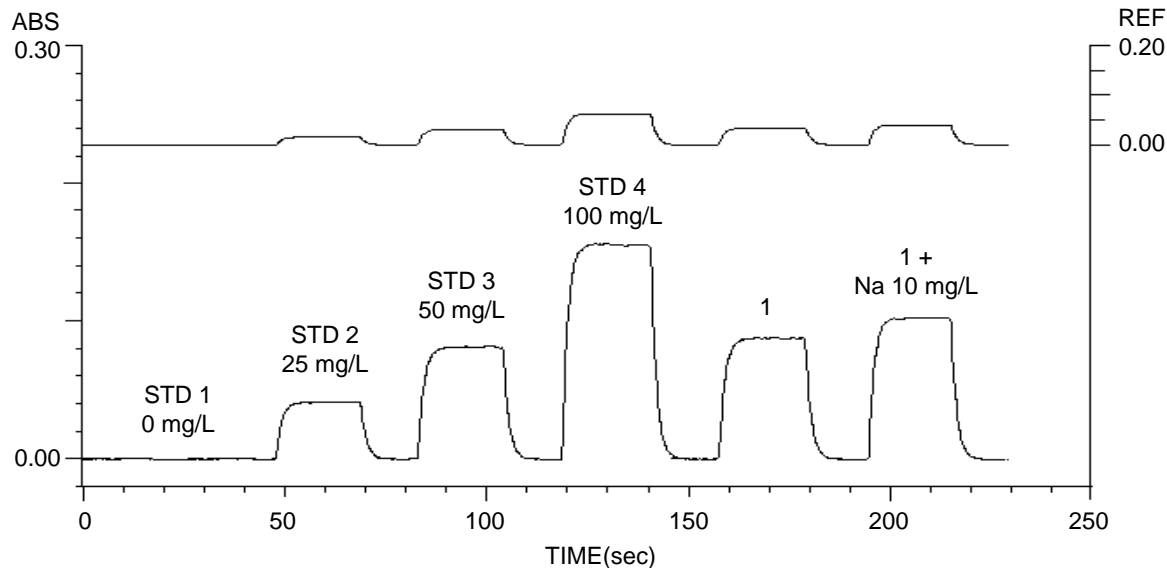
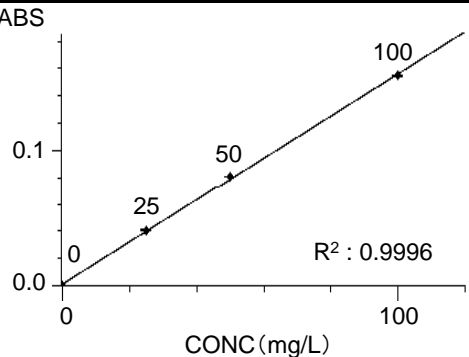
Analysis of Na in Powder Soup (Flame Method)

INTRODUCTION: The excessive consumption of sodium has adverse health effects such as hypertension. Therefore, it is mandatory to include the sodium content in the label in the US, Korea, and China. The description as to "sodium" under the basic item section is also mandated in Japan by the system of the Nutrition Labelling Standards under Article 31 of the Health Promotion Act. The measurement of sodium concentration in food products is essential and atomic absorption spectrometry is used as the analysis method. By changing the wavelength of the analytical line to the one which allows the high concentration measurement, even a solution having a concentration of several tens mg/L can be easily analyzed.

INSTRUMENT CONDITIONS		MEASUREMENT PARAMETERS
Element : Na	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) : 2.0 L/min	Curve Order : Linear
Wavelength : 330.2 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 10.0 mA	15.0 L/min	Time Constant : 1.0 sec
Slit Width : 0.4 nm	Burner Height : 7.5 mm	Calculation Time: 5.0 sec
		Delay Time : 5 sec

NOTE : 1 g of a commercially available powder soup was weighed and 10 mL of nitric acid was added for wet ashing. Then, the solution was replaced with 10 mL of hydrochloric acid. The volume was made up to 25 mL with ultrapure water and the solution further diluted to 50 times was used for the measurement. Na was added to the 50 times diluted solution at 10 mg/L (equivalent to 12.5 mg per 1 g of powder soup) and the recovery rate was determined. A low sensitivity wavelength (330.2 nm) was used for the measurement.

STD	CONC (mg/L)	Mean ABS	SD	RSD	REF	ABS
STD 1	0.00	-0.0004	0.0000	0.00 %	0.0006	
STD 2	25.00	0.0409	0.0003	0.73 %	0.0157	
STD 3	50.00	0.0808	0.0001	0.12 %	0.0314	
STD 4	100.00	0.1550	0.0006	0.39 %	0.0626	
1	55.45	0.0872	0.0000	0.00 %	0.0343	
	55.45(mg/L) × 50 × 25(mL)/1(g) = 69.3 mg/g					
1+ Na 10 mg/L	64.94	0.1019	0.0001	0.10 %	0.0405	
	64.94(mg/L) × 50 × 25(mL)/1(g) = 81.2 mg/g					
	Addition recovery rate: 95 %					



KEY WORDS Bio/Medical Science/Food/Pharmaceutical, Food, Food Chemistry, Food Component, Powder Soup, Sodium, Na, Flame, AA, ZA3000	Atomic Absorption Photometer (AA)
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