ZA3000

Analysis of B in Mineral Water （Electrothermal Method）

INTRODUCTION : For the analysis of a high boiling point element by the electrothermal method, the memory effect of an analyte by a cuvette occurs easily and thus, the analysis accuracy can be greatly reduced. Cuvette cleaning function is installed on ZA3000 series to suppress the memory effect. This function, when either the maximum heating method or temperature programmed method is selected, the memory effect is eliminated between the analysis of each sample. By using this function, a good reproducibility of boron peak, which is greatly affected by the memory effect and had been difficult to analyze in the past, can be obtained.

INSTRUMENT CONDITIONS

Element	: B
Instrument	: ZA3000
Atomization	: GA
Wavelength	: 249.8 nm
Lamp Current	: 10.0 mA
Slit Width	: 0.4 nm
Cuvette	: Pyro C HR

MEASUREMENT PARAMETERS

Meas. Mode	: Working Curve
Signal Mode	: BKG Corrected
Curve Order	: Linear
Calculation	: Peak Height
Time Constant	: 0.1 sec
Temp. Control	: ON

GA AUTOSAMPLER

Sample Volume : 20 μL
Addition : Speed : 4

MATRIX MODIFIER

Matrix Modifier
: 2000 mg/L Ca

Volume : 10 μL Order : Before

TEMPERATURE PROGRAM

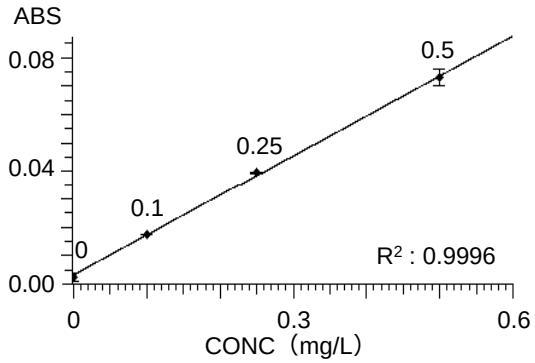
Stage	Initial/Final Temperature (°C)	Heating/Keeping (sec)	Gas Flow Rate (mL/min)	Gas
1 Drying	50 / 110	40 / 0	200	Normal
	110 / 300	20 / 0	200	Normal
2 Incineration	700 / 700	20 / 0	200	Normal
3 Atomization	2700 / 2700	0 / 5	0	Normal
4 Cleaning	2800 / 2800	0 / 4	200	Normal

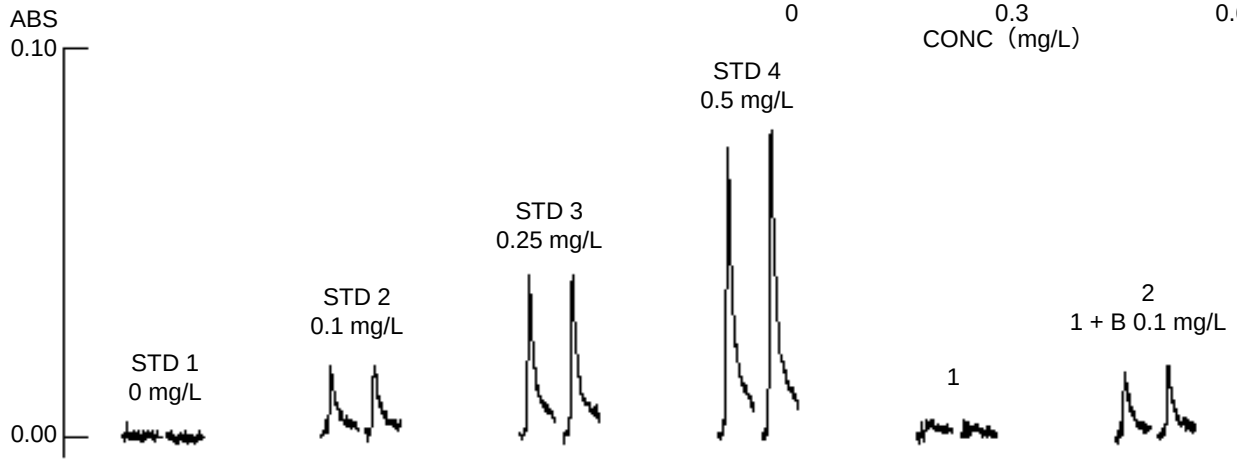
NOTE

The sample was prepared by adding boron to a commercially available mineral water to make a concentration of 0.1 mg/L.

For this analysis, the cuvette cleaning at the maximum heating time of 8 seconds was performed.

	CONC（mg/L）	Mean ABS	SD	RSD	REF
STD 1	0.00	0.0026	0.0015	57.69 %	0.6274
STD 2	0.10	0.0174	0.0000	0.00 %	0.6106
STD 3	0.25	0.0396	0.0002	0.51 %	0.6366
STD 4	0.50	0.0730	0.0029	3.97 %	0.6199
1	0.01	0.0041	0.0001	2.44 %	0.6129
2	0.10	0.0165	0.0014	8.48 %	0.6151





KEY WORDS
Bio/Medical Science/Food/Pharmaceutical, Food, Food Chemistry, Food Component, Mineral Water, Boron, B, Flameless, Graphite Furnace, AA, ZA3000, GA, Pyro C HR, Food

Atomic Absorption Photometer (AA)

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