



Analysis of As in River Water (Electrothermal Method)

ZA3000

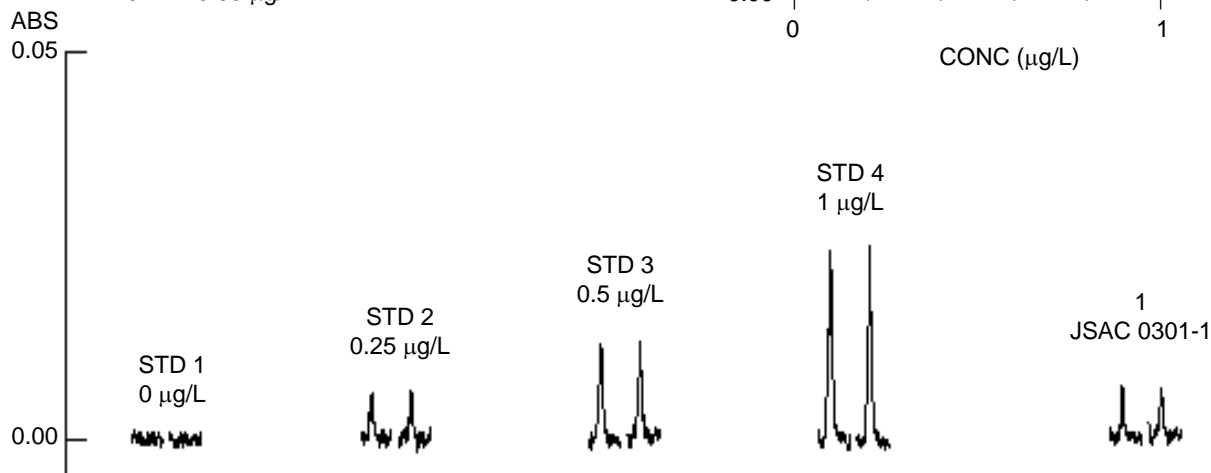
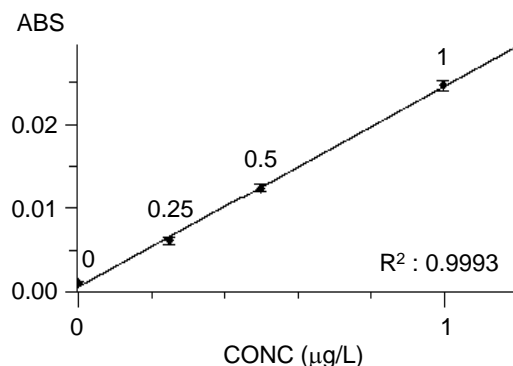
INTRODUCTION: By using the twin injection function, newly installed in the ZA3000 series, instruments, arsenic in river water was analyzed. By using the specially designed twin cuvette (Pyro D HR), a sample is injected into two different injection ports. As a result, the analysis can be performed without extending the drying time even when a large sample volume is injected. By a conventional instrument, it has been difficult to detect arsenic at a level less than 1 µg/L. However, with the twin injection function, the detection without concentration is possible. The analysis result of JSAC 0301-1, a river water certified reference material, was within the range of the certified value, indicating that the accurate analysis is possible.

INSTRUMENT CONDITIONS	MEASUREMENT PARAMETERS	GA AUTOSAMPLER
Element : As	Meas. Mode : Working Curve	Sample Volume : 70 µL
Instrument : ZA3000	Signal Mode : BKG Corrected	Addition : Speed : 4
Atomization : GA	Curve Order : Linear	MATRIX MODIFIER
Wavelength : 193.7 nm	Calculation : Peak Height	Matrix Modifier : 1000 mg/L Pd+Mg
Lamp Current : 12.0 mA	Time Constant : 0.1 sec	Volume : 10 µL Order : After
Slit Width : 1.3 nm	Temp. Control : ON	
Cuvette : Pyro D HR		

TEMPERATURE PROGRAM					NOTE
Stage	Initial/Final Temperature (°C)	Heating/Keeping (sec)	Gas Flow Rate (mL/min)	Gas	Pyro H DR, the cuvette specially designed for twin injection was used for the measurement. Sample 1: River Water Certified Reference Material (unspiked) JSAC 0301-1
1 Drying	80 / 140	40 / 0	200	Normal	
2 Incineration	1000 / 1000	20 / 0	200	Normal	
3 Atomization	2700 / 2700	0 / 3	0	Normal	
4 Cleaning	2800 / 2800	0 / 4	200	Normal	

	CONC (µg/L)	Mean ABS	SD	RSD	REF
STD 1	0.000	0.0010	0.0002	20.00 %	0.1077
STD 2	0.250	0.0061	0.0004	6.56 %	0.1086
STD 3	0.500	0.0125	0.0004	3.20 %	0.1121
STD 4	1.000	0.0247	0.0006	2.43 %	0.1134
1	0.253	0.0067	0.0001	1.49 %	0.1140

Certified value JSAC 0301-1
0.24 ± 0.03 µg/L



KEY WORDS

Environmental Analysis Related, Environmental Water, Clean Water, Environmental Chemistry, River Water, River Water Certified Reference Material (unspiked) JSAC 0301-1, Arsenic, As, Flameless, Graphite Furnace, AA, ZA3000, GA, Pyro D HR, Environment

Atomic Absorption Photometer (AA)

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