



Analysis of Cd in River Water (Electrothermal Method)

ZA3000

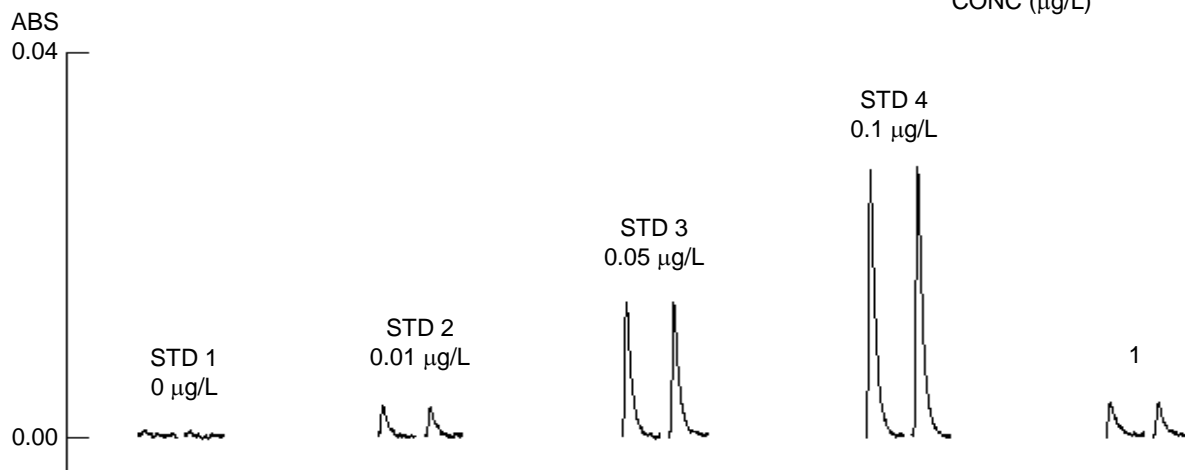
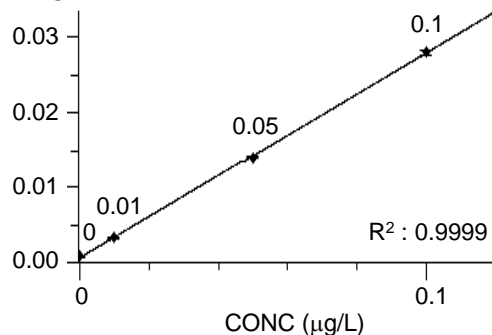
INTRODUCTION: By using the twin injection function, newly installed in the ZA3000 series instruments, cadmium in river water was analyzed. By using the specially designed twin cuvette (Pyro D HR), a sample is injected into two different injection ports and thus, a large volume injection is possible. For the measurement, the drying time can be set at the same as that for a conventional cuvette (Pyro C HR). An example of the detection by the twin injection function for cadmium at a ng/L level in river water without concentration is shown below. The analysis result of SLRS-4, 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 : Cd	Meas. Mode : Working Curve	Sample Volume : 60 μ L
Instrument : ZA3000	Signal Mode : BKG Corrected	Addition : Speed : 4
Atomization : GA	Curve Order : Linear	MATRIX MODIFIER
Wavelength : 228.8 nm	Calculation : Peak Height	Matrix Modifier : 100 mg/L Pd+Mg
Lamp Current : 7.5 mA	Time Constant : 0.1 sec	Volume : 20 μ L Order : After
Slit Width : 1.3 nm	Temp. Control : ON	
Cuvette : Pyro D HR		

TEMPERATURE PROGRAM					NOTE
Stage	Initial/Final Temperature ($^{\circ}$ C)	Heating/Keeping (sec)	Gas Flow Rate (mL/min)	Gas	
1 Drying	80 / 140	40 / 0	200	Normal	Pyro D HR, a cuvette specially designed for twin injection was used for the measurement. Sample 1: SLRS-4 River Water Reference Material for Trace Metals
2 Incineration	600 / 600	20 / 0	200	Normal	
3 Atomization	1500 / 1500	0 / 3	0	Normal	
4 Cleaning	2800 / 2800	0 / 4	200	Normal	

	CONC (μ g/L)	Mean ABS	SD	RSD	REF	ABS
STD 1	0.0000	0.0008	0.0001	12.50 %	0.0017	
STD 2	0.0100	0.0033	0.0001	3.03 %	0.0023	
STD 3	0.0500	0.0141	0.0001	0.71 %	0.0047	
STD 4	0.1000	0.0280	0.0003	1.07 %	0.0063	
1	0.0108	0.0036	0.0000	0.00 %	0.0063	

Certified value SLRS-4 0.012 \pm 0.002 μ g/L



KEY WORDS

Environmental Analysis Related, Environmental Water, Clean Water, Environmental Chemistry, River Water, Cadmium, Cd, Flameless, Graphite Furnace, AA, ZA3000, GA, Pyro D HR, Environment

Atomic Absorption Photometer
(AA)

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