



Analysis of Cs in Drainage Water (Flame Method)

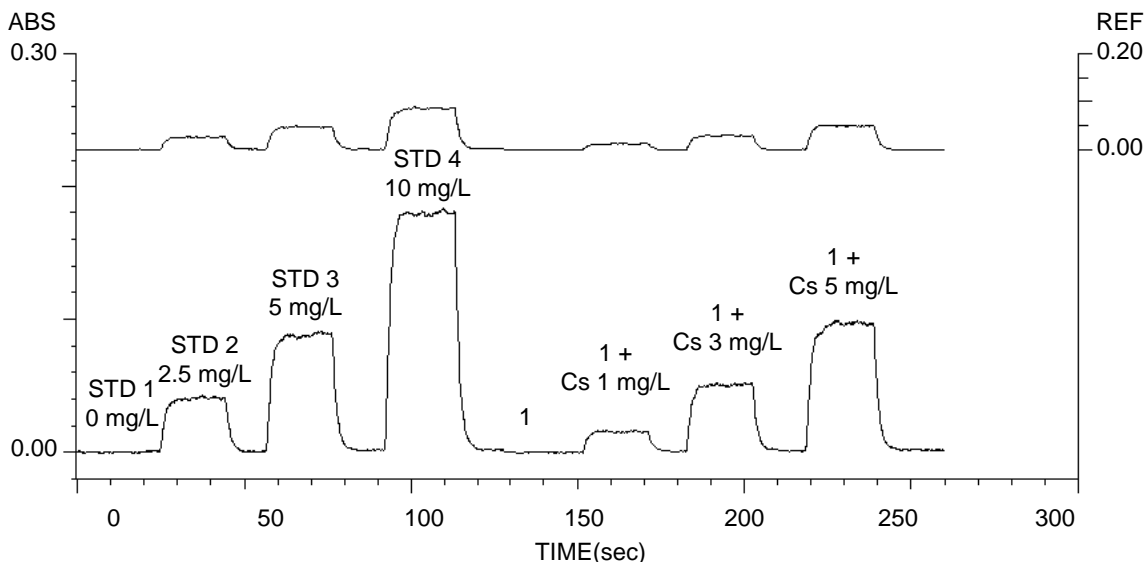
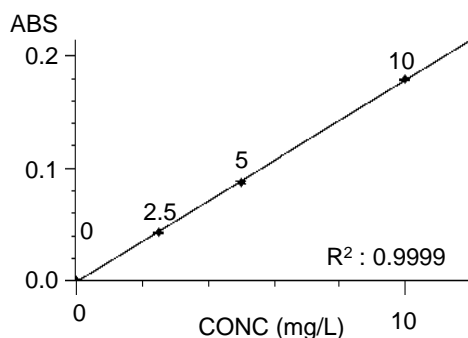
ZA3000

INTRODUCTION: For the analysis of cesium by the flame method, the interference suppression effect and linearity of the calibration curve are improved by adding potassium nitrate and optimizing the flame conditions. While 852.1 nm, the measurement wavelength for cesium, is in the long wavelength region for which background correction is not possible by the D₂ method, the polarized zeeman correction method allows the correction. Cesium, which can be analyzed by the atomic absorption spectrometry, is the total cesium concentration including the stable and radioactive isotopes.

INSTRUMENT CONDITIONS		MEASUREMENT PARAMETERS
Element : Cs	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 : 852.1 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 10.0 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 : A hollow cathode lamp of Hamamatsu Photonics K.K. was used.
Potassium (potassium nitrate) was added to the solution for the measurement to make the concentration of 5000 mg/L.

	CONC (mg/L)	Mean ABS	SD	RSD	REF
STD 1	0.00	0.0002	0.0001	50.00 %	0.0004
STD 2	2.50	0.0425	0.0008	1.88 %	0.0260
STD 3	5.00	0.0878	0.0011	1.25 %	0.0475
STD 4	10.00	0.1794	0.0007	0.39 %	0.0864
1	0.06	-0.0002	0.0001	- %	0.0001
1+ Cs 1 mg/L	0.96	0.0160	0.0001	0.63 %	0.0123
1+ Cs 3 mg/L	2.91	0.0512	0.0002	0.39 %	0.0294
1+ Cs 5 mg/L	5.18	0.0919	0.0004	0.44 %	0.0495



KEY WORDS

Environmental Analysis Related, Drainage Water, Environmental Chemistry, Cesium, Cs, Flame, AA, ZA3000, Flame, Environment

Atomic Absorption Photometer
(AA)

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