



Analysis of Se in Environmental Waters (Flame Method)

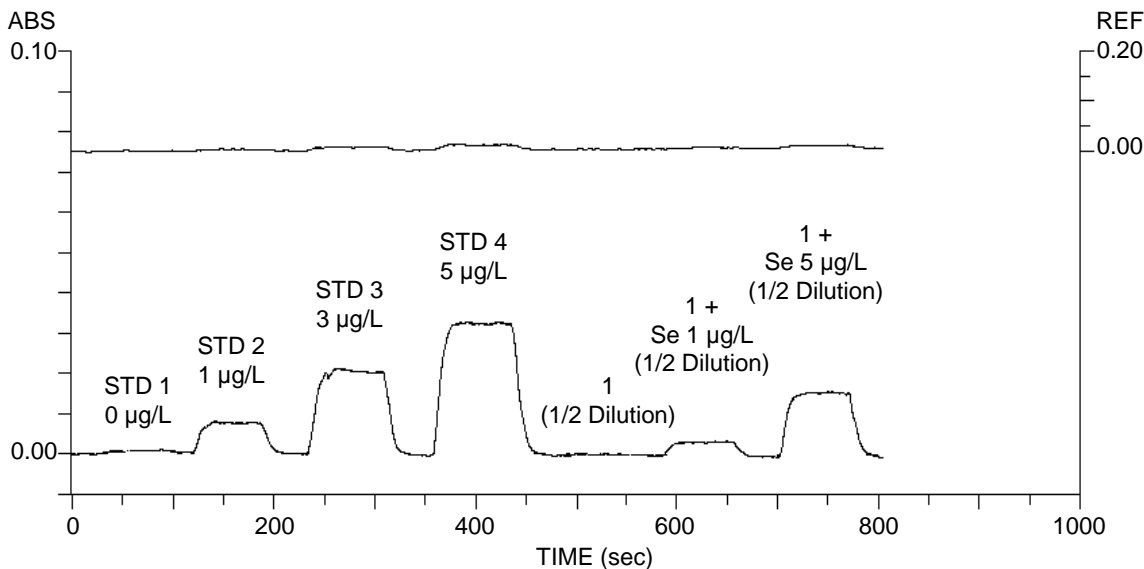
ZA3000

INTRODUCTION : Selenium is an essential element for a human body, but the excessive consumption may cause health problems. Therefore, the drinking water quality standards and the environmental quality standards for soil specify that the standard concentration to be 10 µg/L. ZA3000 series instruments employ the polarized Zeeman method for BKG corrections even for the hydride generation method, and can analyze selenium with accurate BKG corrections and a stable baseline. The result of the addition recovery test performed by hydride generation-atomic absorption spectrometry indicated that selenium in environmental waters can be analyzed accurately.

ANALYTICAL CONDITIONS		MEASUREMENT PARAMETERS
Element : Se	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) : 1.0 L/min	Curve Order : Linear
Wavelength : 196.0 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 12.5 mA	15.0 L/min	Time Constant : 2.0 sec
Slit Width : 1.3 nm	Burner Height : 10.0 mm	Calculation Time : 5.0 sec
		Delay Time : 5 sec

NOTE : HFS-3 hydride formation system was used for the analysis.
 The sample for the measurement was prepared by adding 5 mL of hydrochloric acid to 12.5 mL of the sample and then, making up the volume to 25 mL.
 The concentration of the standard sample solution is for the 25 mL solution.

	CONC (µg/L)	Mean ABS	SD	RSD	REF	ABS
STD 1	0.00	0.00016	0.00001	6.25 %	-0.00008	
STD 2	1.00	0.00701	0.00004	0.57 %	0.00381	
STD 3	3.00	0.01972	0.00008	0.41 %	0.00771	
STD 4	5.00	0.03155	0.00004	0.13 %	0.01221	
1	ND	0.00019	0.00004	21.05 %	0.00346	
1+ Se 1 µg/L	0.50	0.00360	0.00013	3.61 %	0.00761	
	0.50 × 2 = 1.00 µg/L					
1+ Se 5 µg/L	2.47	0.01594	0.00005	0.31 %	0.01124	
	2.47 × 2 = 4.94 µg/L					



KEY WORDS

Environmental Analysis Related, Environmental Water, Environmental Chemistry, Selenium, Se, Flame, Hydride Formation System, AA, ZA3000, Flame, HFS-3, Environment

Atomic Absorption Photometer
(AA)

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