

## Analysis of Cu in Powdered Soy Bean (Flame Method)

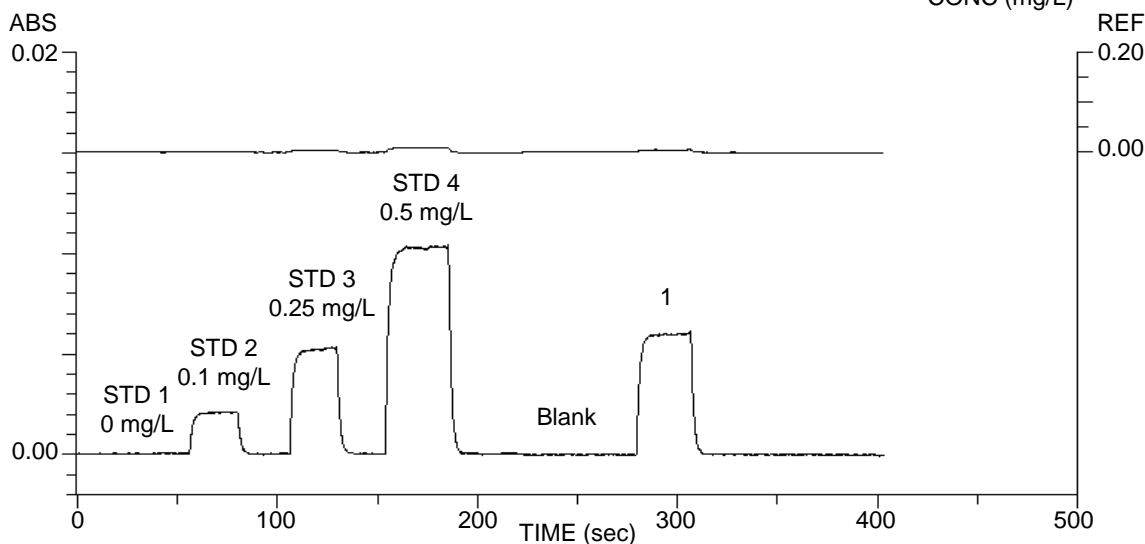
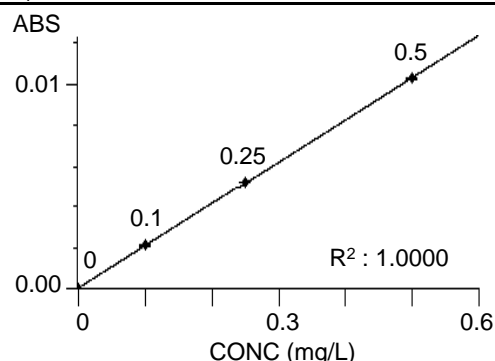
**INTRODUCTION:** Copper is an essential trace element for living organisms and plays an important role in hematopoiesis and bone metabolism. In the expectation of weight gain effect for livestock and reduction of environmental load by excreted substances, copper in fodder is being analyzed. Copper in soy bean flour certified reference material (INCT-SBF-4) was analyzed. The analysis value obtained was within the range of the certified value and it was confirmed that the procedures from the preparation to the measurement were performed correctly. ZA3000 series instruments employ the polarized zeeman correction method for background corrections even for the flame method. As good baseline stability is provided, copper at a level of about 0.1 mg/L can be sufficiently analyzed.

INSTRUMENT CONDITIONS		MEASUREMENT PARAMETERS
Element : Cu	Atomizer : STD Burner	Meas. Mode : Working Curve
Instrument : ZA3000	Flame : Air-C <sub>2</sub> H <sub>2</sub>	Signal Mode : BKG Corrected
Atomization : Flame	Fuel (C <sub>2</sub> H <sub>2</sub> ) : 2.0 L/min	Curve Order : Linear
Wavelength : 324.8 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 7.5 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 :** [Preparation] 7 mL of nitric acid and 1 mL of hydrogen peroxide solution were added to 0.5 g of the sample and the mixture was heated for dissolution by a microwave cracking furnace. After cooling, the total volume was made up to 25 mL with purified water.

Sample 1: Soy bean flour certified reference material (INCT-SBF-4)

	CONC (mg/L)	Mean ABS	SD	RSD	REF
STD 1	0.000	0.00001	0.00000	0.00 %	-0.00009
STD 2	0.100	0.00209	0.00002	0.96 %	0.00153
STD 3	0.250	0.00523	0.00003	0.57 %	0.00406
STD 4	0.500	0.01029	0.00005	0.49 %	0.00815
Blank	ND	0.00002	0.00001	50.00 %	-0.00011
1	0.289	0.00598	0.00002	0.33 %	0.00491
$0.289 \times 0.025 \text{ L} \times 1000 / 0.5 \text{ g} = 14.45 \text{ mg/kg}$					
Certified value of INCT-SBF-4				14.30±0.46 mg/kg	



**KEY WORDS**

Bio/Medical Science/Food/Pharmaceutical, Food, Fertilizer/Fodder, Food Chemistry, Food Component, Agriculture, Fodder Component, Powdered Soy Bean, Copper, Cu, Flame, AA, ZA3000

Atomic Absorption Photometer  
(AA)

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