



ZA3000

Analysis of Fe in Gelatin (Flame Method)

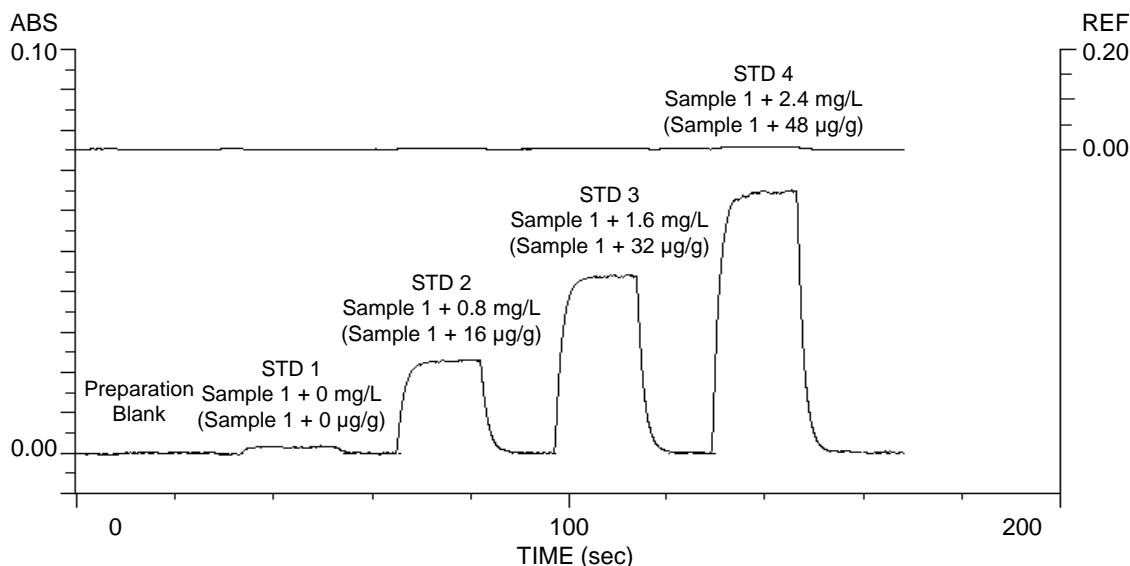
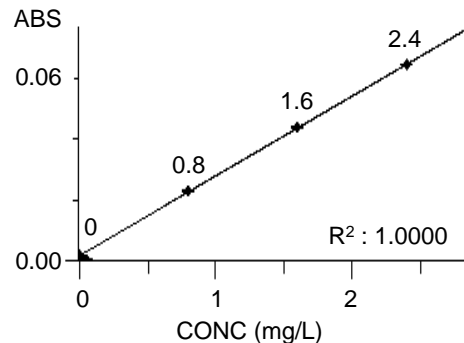
INTRODUCTION: In the Japanese Pharmacopoeia Sixteenth Edition promulgated by the Ministerial Notification No. 65 of the Ministry of Health, Labour and Welfare in 2011, the General Tests, Processes and Apparatus and Official Monographs are to be partly revised, and the edition will be issued and become effective in May, 2013. In the draft revision, the section of iron is added for the Purity of gelatin and the flame atomic absorption spectrophotometry is to be employed as the analysis method. ZA3000 series instruments employ the polarized Zeeman method for BKG corrections even for the flame method. The accurate BKG corrections and a stable baseline allow the sufficient analysis of iron at 1/2 the level of the specification (draft).

ANALYTICAL CONDITIONS		MEASUREMENT PARAMETERS
Element : Fe	Atomizer : STD Burner	Meas. Mode : Std. Addition
Instrument : ZA3000	Flame : Air-C ₂ H ₂	Signal Mode : BKG Corrected
Atomization : Flame	Fuel (C ₂ H ₂) : 1.8 L/min	Curve Order : Linear
Wavelength : 248.3 nm	Oxidant (Air) : 160 kPa	Calculation : Integration
Lamp Current : 12.5 mA	15.0 L/min	Time Constant : 1.0 sec
Slit Width : 0.2 nm	Burner Height : 7.5 mm	Calculation Time: 3.0 sec
		Delay Time : 5 sec

NOTE : [Sample Preparation] 5 g of gelatin capsule was weighed in a beaker. 10 mL of hydrochloric acid was added and the mixture was heated at 75°C–80°C. After the dissolution, purified water was added to make the volume to 100 mL. The supernatant was used for the measurement.
The draft revision describes the standard addition method as the analysis method and not more than 30 ppm (µg/g) as the specification value.

	CONC (mg/L)	Mean ABS	SD	RSD	REF
Blank	0.000	0.00010	0.00006	60.00 %	-0.0005
STD 1	0.000	0.00139	0.00003	2.16 %	-0.00012
STD 2	0.800	0.02275	0.00006	0.26 %	0.00146
STD 3	1.600	0.04373	0.00014	0.32 %	0.00312
STD 4	2.400	0.06451	0.00008	0.12 %	0.00459
1	0.055	0.00139	-	- %	-

$$0.055 \text{ (mg/L)} \times 100 \text{ (mL)} / 5 \text{ (g)} = 1.1 \text{ (}\mu\text{g/g)}$$



KEY WORDS

Bio/Medical Science/Food/Pharmaceutical, Drug/Pharmaceutical, Other Bio/Medical Science/Food/Pharmaceutical Related, Medical Science/Pharmaceutical Science, Gelatin, Iron, Fe, Flame, AA, ZA3000, Health

Atomic Absorption Photometer (AA)

Sheet No. AA130001-00