

Supplementary Materials – SM1

Protocol for the Determination of the Gold Concentration after Digestion

1. Preparation of Reagents

- a) 1L Nitric Acid (1,5%)
23 mL of 65% Nitric acid in ultrapure water

2. Calibration Curve (0 – 20 ppb), Internal Standard Thallium (Tl) at 10 ppb

- a) Working Solutions

Ionic Gold Working Solution

Gold (1000 ppm → 10 ppm)

250 µL of Mothersolution (1000 ppm) in 25 mL 1.5% HNO₃

Ionic Thallium Solution

Thallium (1000 ppm → 10 ppm)

250 µL of Mothersolution (1000 ppm) in 25 mL 1.5% HNO₃

- b) Calibration Curve

	Conc. [ppb]	Dilution Factor from Working Solution	Volume of Au+ Working Solution in 50 mL HNO ₃ 1,5% [µL]	Volume of Thallium Working Solution in 50 mL HNO ₃ 1,5% [µL]
Cal 0	0		0	50 (=10 ppb)
Cal 5	5	2000	25	50 (=10 ppb)
Cal 10	10	1000	50	50 (=10 ppb)
Cal 15	15	666.6667	75	50 (=10 ppb)
Cal 20	20	500	100	50 (=10 ppb)

3. Sample preparation

Add 100 µL of sample suspensions (concentration should be around 50ppm) into 50 mL Falcon tube

Add 0.15 mL Nitric Acid (65%)

Add 1.5 mL Hydrochloric Acid (37%)

Let sit at RT for 1h

Add 500 µL of Internal standard working solution (10 ppm)

Bring to volume (50 mL) with ULTRAPURE WATER

Dilute 1:10 with Nitric Acid (1.5%)

Blank Sample

Same as above but no gold suspension

4. Recovery Check

Add 500 µL of ionic gold working solution (10 ppm)

Add 0.15 mL Nitric Acid (65%)

Add 1.5 mL Hydrochloric Acid (37%)

Let sit at RT for 1h

Add 500 µL of Internal standard working solution (10 ppm)

Bring to volume (50 mL) with ULTRAPURE WATER

Dilute 1:10 with Nitric Acid (1.5%)