

- > Sample preparation procedure
- > Standard preparation
- > Operating conditions
- > Safety Precautions



Application Procedure for Analyzing Copper in Urine

Copper is an essential trace element in the human body, but its excess can lead to health issues. Analyzing copper levels in urine is crucial for assessing a patient's copper metabolism. This procedure outlines the steps for accurately measuring copper concentration in urine samples.

By following this procedure, you can accurately analyze copper levels in urine samples, ensuring reliable results for diagnostic and research purposes.

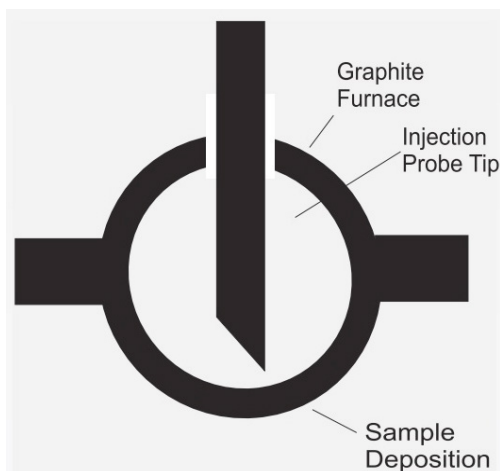
Sample Preparation Procedure

1. Thaw the urine samples at room temperature for 15-20 minutes.
2. Homogenize the samples by slowly vortexing.
3. Centrifuge at 14400 rpm for 2-3 minutes.
4. Dilute the urine samples with pure deionized water in a 1:3 ratio into a microplate (For example, 80 uL urine + 240 uL water).
5. Homogenize the diluted samples by mixing them on a microplate mixer for 2-3 minutes.

Standard Preparation

The standards for the calibration curve are to be made up from a known concentration of NIST #2670 elevated concentration Reference Standards.

Standard No.	NIST standard volume (uL)	Water volume (uL)	Concentration (ppb)
1	2.5	317.5	2.9
2	5.0	315.0	5.8
3	10.0	310.0	11.6
4	20.0	300.0	23.2
5	30.0	290.0	34.8



Operating Conditions

Instrument: Aurora TRACE Series GFAAS

Injection volume: 20 ul

Aurora Instruments TRACE Series	
Method Name	Urine
Element Name	Copper (Cu)
Instrument Mode	Absorbance
Display Mode	Corrected
Manual Band Pass	0.7nm
Lamp 1 Current	3.0mA
Lamp 2 Current	0.0mA
Wavelength	327.36nm
PMT Voltage	300.0V
Preheat Steps	0
Cooling Time	60 sec
Inject Speed	5
Furnace Profile Steps	8

Step	Final temp (°C)	Ramp time (sec)	Hold time (sec)	Gas flow (L/min)	Plasma ON	Collect data	Integrate
1	50	0.00	1.00	1.50	Off	Off	Off
2	130	12.00	1.00	1.50	Off	Off	Off
3	300	6.00	1.00	1.50	Off	Off	Off
4	850	10.00	2.00	1.50	Off	Off	Off
5	850	0.00	4.00	1.50	Off	On	Off
6	2300	0.00	1.00	0.50	Off	On	Off
7	30	0.00	3.00	1.50	Off	On	Off
8	30	0.00	18.00	1.50	Off	Off	Off

Safety Precautions

1. Wear appropriate safety gear, including gloves, lab coats, and safety goggles.
2. Perform all chemical handling and digestion steps in a fume hood to minimize exposure to fumes.
3. Dispose of waste materials as per laboratory safety protocols.