

## HG SERIES

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## MERCURY in Nickel Coating

Issued: June 2008

Method: Cold Vapor Atomic Absorption

### 【Outline】

Mercuric compounds in sample are broken down and oxidized to mercuric ions by strong acids and oxidant in pretreatment. Mercury is reduced to Hg(0) state by stannous chloride and aerated, then pass through the absorption cell to be measured at 253.7nm absorbance based on AAS.

### 【Configurations】

HG-400-5D (5mL testing size, Dispenser D-401 equipped)

### 【Reagents】

- ◆for Pretreatment
  - Nitric acid (conc.)
  - Hydrochloric acid (conc.)
- ◆for Calibration curve
  - Hg standard solution 100ngHg/mL  
(prepare 0, 1, 5, 10ngHg/mL standard solutions by changing dilution rate.)
- ◆for Measurement
  - Stannous chloride, Sulfuric acid (1+1)

HG-400-5D



### 【Sample Pretreatment】

1. Transfer a small piece of metal coating to a 50mL beaker and accurately weigh it. (Sample size, 545.1 mg)
  2. Add 6mL of conc. nitric acid and 2mL of conc. hydrochloric acid to dissolve the sample.
  3. Transfer the solution to a 50mL reduction flask (volumetric flask) and add distilled water to make a total volume of 50mL.
- ~Solution for Reagent blank
4. Prepare another flask and add the same amount of the reagents and carry out the same process as described above without the sample.

### 【Calibration curve】

Proceed Hg standard solutions (0, 1, 5, 10ngHg/mL) to construct a calibration curve.

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### 【Reagent Blank Measurement】

1. Transfer 5mL of the Reagent blank solution to a reaction vessel and attach it to the bubbler. (BLK2)
2. Touch **START** key. 0.5mL of sulfuric acid (1+1) and 0.5mL of stannous chloride solution are automatically added and bubbling starts.
3. The amount of Hg in the reagent blank is determined and used to correct the absorbance value of the sample.

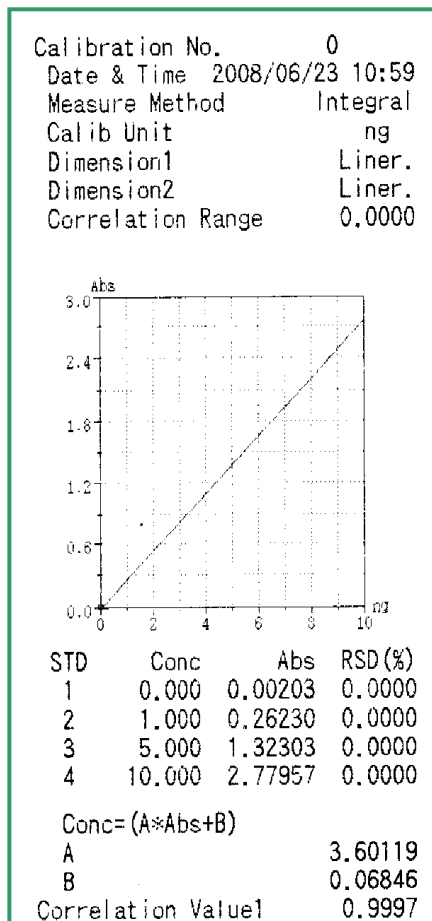
### 【Sample Measurement】

1. Transfer 5mL of the sample solution to a reaction vessel and attach it to the bubbler.
2. Touch **START** key. 0.5mL of sulfuric acid (1+1) and 0.5mL of stannous chloride solution are automatically added and bubbling starts. Concentration of mercury is obtained by absorbance at 253.7nm corresponding to the calibration curve.

### 【Example results】

Testing size (mL)	Sample No.	Mercury (ng)	Mercury Conc. (ppb)	Statistics	
5	1	0.25	4.558	MEAN (ppb)	4.5
	2	0.24	4.327	SD (ppb)	0.12
	3	0.24	4.479	CV (%)	2.6

### 【Calibration Curve】



### 【Abs. Curve】

