

## Overview

### Useful For

Determining antimony toxicity

### Special Instructions

- [Metals Analysis Specimen Collection and Transport](#)

### Method Name

Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

### NY State Available

Yes

## Specimen

### Specimen Type

Whole blood

### Specimen Required

**Patient Preparation:** High concentrations of gadolinium and iodine are known to interfere with most metal tests. If either gadolinium- or iodine-containing contrast media has been administered, a specimen should not be collected for 96 hours.

**Supplies:** Greiner Bio-One VACUETTE TUBE 6 mL NH Trace Elements Sodium Heparin tube (T819)

**Container/Tube: Required: Greiner Bio-One Vacuette Tube 6 mL NH Trace Elements Sodium Heparin tube** (Becton-Dickinson (BD) royal blue-top tubes are **not acceptable**.)

**Specimen Volume:** 0.8 mL

#### Collection Instructions:

1. See [Metals Analysis Specimen Collection and Transport](#) for complete instructions.
2. Send whole blood specimen in original tube. **Do not aliquot.**

### Specimen Minimum Volume

0.25 mL

### Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
Whole blood	Refrigerated	7 days	

**Clinical & Interpretive****Clinical Information**

Antimony is a silvery white metal that is used in alloys for lead batteries, solder, sheet metal, bearings, castings, ammunition, and pewter. It is also used for pigments, abrasives, flame-proofing fabrics, and in medications (ie, sodium stibogluconate [Pentostam], which is used to treat cutaneous leishmaniasis).(1) Antimony typically enters the environment during mining, processing of ores, emissions from coal-burning power plants, and production of alloys. Exposure to antimony can occur through inhalation, ingestion, or dermal contact with soil, water, foods, or certain medications. In the workplace, exposure is usually via inhalation. The Occupational Safety and Health Administration has set a limit of 0.5 mg/m<sup>3</sup> of antimony in workroom air to protect workers during an 8-hour work shift (40-hour workweek).(2)

Absorption of antimony through the lungs may take days to weeks. Absorption of antimony from ingestion typically enters the blood within a few hours.(2) The amount and form of the antimony affects how much is absorbed. Once in the blood, antimony is distributed to the liver, lungs, intestines, and spleen. Elimination is primarily through the urine, occurring over several weeks. The half-life varies depending on the chemical form. Trivalent antimony is primarily bound to erythrocytes, while pentavalent antimony is primarily found in plasma, which makes whole blood the preferred specimen to analyze for acute intoxication. Whole blood concentrations in healthy subjects not exposed to antimony averaged 0.7 mcg/L and usually do not exceed 2 mcg/L.(3) In battery plant workers, median blood antimony concentrations of 2.6 mcg/L were found in metal casters and 10 mcg/L in metal form workers.(4)

The effects of acute or chronic antimony poisoning are similar to arsenic poisoning and include abdominal pain, dyspnea, nausea, vomiting, dermatitis, and visual disturbances.(1) Additionally, toxicity can include pneumoconiosis and altered electrocardiograms.(2)

**Reference Values**

<3 ng/mL (unexposed)

3-10 ng/mL (exposed)

**Interpretation**

Normal blood concentrations are 0.7 to 2 ng/mL in the unexposed population and 2.6 to 10 ng/mL in exposed workers.(3)

**Cautions**

No significant cautionary statements

**Clinical Reference**

- Baselt R. Disposition of Toxic Drugs and Chemicals In Man. 10th ed. Biomedical Publications; 2014
- Agency for Toxic Substances and Disease Registry: Toxicological profile for antimony and compounds. US Department of Health and Human Services; October 2019. Accessed May 18, 2020. Available at

[www.atsdr.cdc.gov/toxprofiles/tp23.pdf](http://www.atsdr.cdc.gov/toxprofiles/tp23.pdf)

3. Gebel T, Claussen K, Dunkelberg H. Human biomonitoring of antimony. *Int Arch Occup Environ Health*. 1998;71(3):221-224

4. Kentner M, Leinemann M, Schaller KH, Weltle D, Lehnert G. External and internal antimony exposure in starter battery production. *Int Arch Occup Environ Health*. 1995;67(2):119-123

5. Sodi R. Vitamins and trace elements. In: Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. *Tietz Textbook of Laboratory Medicine*. 7th ed. Elsevier; 2023:chap 39

## Performance

### Method Description

The metal of interest is analyzed by inductively coupled plasma mass spectrometry.(Unpublished Mayo method)

### PDF Report

No

### Day(s) Performed

Wednesday

### Report Available

1 to 8 days

### Specimen Retention Time

14 days

### Performing Laboratory Location

Rochester

## Fees & Codes

### Fees

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact [Customer Service](#).

### Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information

83018

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**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
SBWB	Antimony, B	5578-0

Result ID	Test Result Name	Result LOINC® Value
64273	Antimony, B	5578-0