

Overview**Useful For**

Detecting exposure to cadmium, a toxic heavy metal

Method Name

InductivelyCoupledPlasma-MassSpectrometry(ICP-MS)

NY State Available

Yes

Specimen**Specimen Type**

Whole blood

Specimen Required

Container/Tube: Royal blue-top (EDTA) Vacutainer plastic trace element blood collection tube (T183)

Specimen Volume: Full tube

Collection Instructions: Send specimen in original tube.

Additional Information:

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

2. If ordering the trace element blood collection tube from BD, order catalog #368381.

Specimen Minimum Volume

0.3 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 (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Clinical and Interpretive

Clinical Information

The toxicity of cadmium resembles the other heavy metals (arsenic, mercury, and lead) in that it attacks the kidney; renal dysfunction with proteinuria with slow onset (over a period of years) is the typical presentation. Breathing the fumes of cadmium vapors leads to nasal epithelial deterioration and pulmonary congestion resembling chronic emphysema.

The most common source of chronic exposure comes from spray painting of organic-based paints without use of a protective breathing apparatus; auto repair mechanics represent a susceptible group for cadmium toxicity. Tobacco smoke is another common source of cadmium exposure.

Reference Values

0.0-4.9 mcg/L

Reference values apply to all ages.

Interpretation

Normal blood cadmium is <5.0 mcg/L, with most results in the range of 0.5 to 2.0 mcg/L.

Acute toxicity will be observed when the blood level exceeds 50 mcg/L.

Cautions

High concentrations of gadolinium and iodine are known to interfere with most metals tests. If either gadolinium- or iodine-containing contrast media has been administered, a specimen cannot be collected for 96 hours.

Clinical Reference

1. Moreau T, Lellouch J, Juguet B, et al: Blood cadmium levels in a general male population with special reference to smoking. Arch Environ Health 1983;38:163-167
2. Occupational Safety and Health Administration, US Department of Labor: Cadmium Exposure Evaluation. Updated 9/2/2008. Available from URL:osha.gov/SLTC/cadmium/evaluation.html

Performance

Method Description

Arsenic (As), cadmium (Cd), mercury (Hg), and lead (Pb) are analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in kinetic energy discrimination (KED) mode using helium as a nonreactive gas to collide with polyatomic interferences such as argon chloride (ArCl). Internal standards used are gallium (Ga) for As, rhodium (Rh) for Cd, and lutetium (Lu) and iridium (Ir) summed for Hg and Pb. A salt matrix calibration is used. (Nixon DE, Moyer TP: Routine clinical determination of lead, arsenic, cadmium, and thallium in urine and whole blood by inductively coupled plasma mass spectrometry. Spectrochimica Acta Part B-Atomic Spectroscopy 1996; 51: 13-25)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Saturday; 2 p.m.

Analytic Time

1 day

Maximum Laboratory Time

3 days

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

82300

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
CDOMB	Cadmium Occupational Monitor, B	5609-3

Result ID	Test Result Name	Result LOINC Value
89539	Cadmium Occupational Monitor, B	5609-3