

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

Patient Preparation: 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.

Supplies: Metal Free B-D Tube (EDTA), 6 mL (T183)

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

Specimen Volume: Full tube

Collection Instructions: Send specimen in original tube.

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

Reject Due To

Gross hemolysis OK

Gross lipemia OK

Gross icterus OK

Specimen Minimum Volume

0.3 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole blood	Refrigerated (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Clinical & 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. In addition, another common source of cadmium exposure is tobacco smoke.

Reference Values

<5.0 ng/mL

Reference values apply to all ages.

Interpretation

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

Acute toxicity will be observed when the blood level exceeds 50 ng/mL.

Cautions

No significant cautionary statements

Clinical Reference

1. Moreau T, Lellouch J, Juguet B, et al: Blood cadmium levels in a general population with special reference to smoking. Arch Environ Health. 1983;38:163-167
2. Strathmann FG, Blum LM: Toxic Elements. In: Rafai N, Horwath AR., Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics 6th ed. Elsevier, 2018;chap 42

Performance**Method Description**

Cadmium (Cd) is analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in kinetic energy discrimination (KED) mode using helium as a non-reactive gas to collide with polyatomic interferences such as argon chloride (ArCl). Internal standard used is rhodium (Rh). A salt matrix calibration is used. (Unpublished Mayo method)

PDF Report

No

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees & Codes**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 US Food and Drug Administration.

CPT Code Information

82300

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
CDB	Cadmium, B	5609-3

Result ID	Test Result Name	Result LOINC Value
8682	Cadmium, B	5609-3