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## Overview

### Useful For

Determining iodine overload using serum specimens

Monitoring iodine levels in individuals taking iodine-containing drugs

### Special Instructions

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

### Method Name

Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Specimen Required

#### Patient Preparation:

1. Disinfectants, such as Betadine that contain iodine should **not** be used during specimen collection..
2. High concentrations of gadolinium and iodine may interfere with inductively coupled plasma mass spectrometry-based metal 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 (No Additive), 6 mL (T184)
- Metal Free Specimen Vial (T173)

**Collection Container/Tube:** Plain, royal blue-top Vacutainer plastic trace element blood collection tube

**Submission Container/Tube:** Mayo metal-free, screw-capped, polypropylene vial

**Specimen Volume:** 1 mL serum

#### Collection Instructions:

1. Allow specimen to clot for 30 minutes; then centrifuge the specimen to separate serum from the cellular fraction.
2. Remove the stopper. Carefully pour specimen into Mayo metal-free, polypropylene vial, avoiding transfer of the cellular components of blood. **Do not** insert a pipet into the serum to accomplish transfer, and do not ream the specimen with a wooden stick to assist with serum transfer.
3. See [Trace Metals Analysis Specimen Collection and Transport](#) for complete instructions.

### Specimen Minimum Volume

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Serum: 0.3 mL

**Reject Due To**

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

**Specimen Stability Information**

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

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

Iodine is an essential element required for thyroid hormone production. The measurement of iodine serves as an index of adequate dietary iodine intake and iodine overload, particularly from iodine-containing drugs, such as amiodarone.

**Reference Values**

40-92 ng/mL

**Interpretation**

Values between 80 ng/mL and 250 ng/mL have been reported to indicate hyperthyroidism.

Values above 250 ng/mL may indicate iodine overload.

**Cautions**

There are no known analytical interferences with this procedure.

Administration of iodine-containing contrast media will yield elevated results.

**Clinical Reference**

- Allain P, Berre S, Krari N, et al. Use of plasma iodine assay for diagnosing thyroid disorders. *J Clin Pathol.* 1993;46(5):453-455
- Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. *Tietz Textbook of Laboratory Medicine.* 7th ed. Elsevier; 2023
- Leung AM, Braverman LE. Consequences of excess iodine. *Nat Rev Endocrinol.* 2014;10(3):136-142. doi:10.1038/nrendo.2013.251
- U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS; 2004. Accessed November 12, 2025. Available at [www.atsdr.cdc.gov/ToxProfiles/tp158.pdf](http://www.atsdr.cdc.gov/ToxProfiles/tp158.pdf)

**Performance****Method Description**

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

**PDF Report**

No

**Day(s) Performed**

Monday through Friday

**Report Available**

2 to 4 days

**Specimen Retention Time**

14 days

**Performing Laboratory Location**

Mayo Clinic Laboratories - Rochester Superior Drive

**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**

83789

**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
IOD	Iodine, S	2494-3

Result ID	Test Result Name	Result LOINC® Value
81574	Iodine, S	2494-3