

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

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

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 |