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## Overview

### Useful For

Determination of iodine overload using serum specimens

Monitoring iodine levels in individuals taking iodine-containing drugs

### Special Instructions

- [Trace 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 venipuncture.
2. 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:** Metal Free Specimen Vial (T173)

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

**Submission Container/Tube:** 7-mL Mayo metal-free, screw-capped, polypropylene vial

**Specimen Volume:** 1 mL

#### 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.

**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 |
|---------------|--------------------------|---------|-------------------|
| Serum         | Refrigerated (preferred) | 21 days |                   |
|               | Ambient                  | 21 days |                   |
|               | Frozen                   | 21 days |                   |

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

Iodine is an essential element that is 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.

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

**Clinical Reference**

1. Allain P, Berre S, Krari N, et al: Use of plasma iodine assay for diagnosing thyroid disorders. J Clin Pathol. 1993 May;46(5):453-455
2. Rifai N, Horwath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018
3. Leung AM, Braverman LE: Consequences of excess iodine. Nat Rev Endocrinol. 2014 Mar;10(3):136-142. doi: 10.1038/nrendo.2013.251
4. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS; 2004. Accessed November 25, 2020. Available at [www.atsdr.cdc.gov/ToxProfiles/tp158.pdf](http://www.atsdr.cdc.gov/ToxProfiles/tp158.pdf)

**Performance****Method Description**

Iodine in serum is analyzed using inductively coupled plasma mass spectrometry (ICP-MS).(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.

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**CPT Code Information**

83789

**LOINC® Information**

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

| Result ID | Reporting Name | LOINC® |
|-----------|----------------|--------|
| 81574     | Iodine, S      | 2494-3 |