

## 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

InductivelyCoupledPlasma-MassSpectrometry(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 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 (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:** 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](#) in Special Instructions for complete instructions.

**Additional Information:** If ordering the trace element blood collection tube from Becton Dickinson (BD), order catalog #368380.

### 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
Serum	Refrigerated (preferred)	21 days	
	Ambient	21 days	
	Frozen	21 days	

## Clinical and 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.

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. Nader R, Horwath AR, Wittwer CT: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Sixth edition. St. Louis. Elsevier. 2017

3. Leung AM, Braverman LE: Consequences of excess iodine. Nat Rev Endocrinol 2014 Mar;10(3):136-142 doi 10.1038/nrendo.2013.251

## Performance

### Method Description

This assay is performed on an inductively coupled plasma-mass spectrometer. Calibrating standards and blanks are diluted with an aqueous basic diluent containing internal standards. Quality control specimens and patient samples are diluted in an identical manner. In turn, all diluted blanks, calibrating standards, quality control specimens, and patient specimens are aspirated into a pneumatic nebulizer and the resulting aerosol directed to the hot plasma discharge by a flow of argon. In the annular plasma, the aerosol is vaporized, atomized, then ionized. The ionized gases plus neutral species formed in the annular plasma space are aspirated from the plasma through an orifice into a quadrupole-mass spectrometer. The mass range from 1 to 263 amu is rapidly scanned multiple times and ion counts tabulated for each mass of interest. Instrument response is defined by the linear relationship of analyte concentration versus ion count ratio (analyte ion count/internal standard ion count). Analyte concentrations are derived by reading the ion count ratio for each mass of interest and determining the concentration from the response line.(Unpublished Mayo method)

### PDF Report

No

### Day(s) and Time(s) Test Performed

Monday, Thursday; Continuously

### Analytic Time

1 day

### Maximum Laboratory Time

3 days

### Specimen Retention Time

2 weeks

### 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

83789



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**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