

This package insert must be read carefully prior to use.

Class II General and Biochemical Test Series
(Classification No.: 80022002)
Calcium assay kit
(Classification No.: 30187002)

measuring the absorbance of the red-purple color complex. (With this method, the influence of magnesium is eliminated by adding 8-hydroxyquinoline.)

Autosera CA for PTS

Calcium + o-Cresolphthalein complexone $\xrightarrow{\text{Alkaline}}$
Complex (red-purple color)

General Precautions **

1. This product is for in vitro diagnostic use, and must not be used for any other purposes.
2. Clinicians should make a comprehensive clinical decision based on assay results in conjunction with clinical symptoms and other examination results.
3. For the effects of an administered drug on the measured value, carefully read the Precautions for Use in the package insert of the drug, especially the section about the effects on laboratory test results. Please also read carefully the “2. Interfering Substances,” in the “Procedural Precautions” section, as well as “2. Precautions for Assessment” in the “Assessment of Assay Results” section, of this package insert.
4. This product should be used only as directed in this package insert. Reliability of results cannot be guaranteed if there are any deviations from the instructions in this package insert.
5. If the reagent accidentally comes in contact with eyes and/or mouth, rinse immediately with ample water as first aid, and consult the doctor if required.
6. Carefully read the operating instructions for each type of automated analyzers prior to using this product. Parameters for each type of analyzers are available, and can be requested from SEKISUI MEDICAL CO., LTD. if required.
7. Perform a quality control test prior to assay to ensure accuracy.

Description (Kit Components) **

Component: Ingredients
CA Reagent 1
CA Reagent 2: o-Cresolphthalein complexone

Intended Use

Measurement of calcium in serum or urine

Calcium is mostly localized in the bones of the body, but it also exists in other tissues and the serum. It plays an important role in bone formation, blood coagulation, and neurotransmission. Therefore, measurement of the blood level of calcium is considered to be important for the diagnosis of bone and endocrine diseases.

Assay Principle

1. Assay Principle

Calcium in the samples binds to o-cresolphthalein complexone to form a complex with a red-purple color. The calcium content is determined by

2. Features

- 1) This product specifically reacts with calcium.
- 2) The influence of magnesium is eliminated.
- 3) CA Reagent 1 is superimposed with synthetic isoparaffin to stabilize the reagent by protection from air.

Procedural Precautions **

1. Properties of Samples and Sampling Methods

- 1) Samples
Serum and urine may be used.
- 2) Storage of samples¹⁾
If the isolated serum sample cannot be tested on the same day, specimens should be stored as follows:
2–10°C: for tests within 1 week
Bring samples to room temperature (15–30°C) before use.
Urine samples should be tested on the same day.

2. Interfering substances

- 1) Assay results are not affected by bilirubin (up to 20 mg/dL), hemoglobin (up to 500 mg/dL), or ascorbic acid (10 mg/dL).
- 2) Note: When samples from patients who have received gadolinium contrast medium are measured, false low results may be obtained.^{2) 3)}

3. Others

- 1) Always use Serum Multicalibrator (SEKISUI), Seronorm Multicalibrator, Seronorm Human or Anasera CA Standard Solution for calibration.
- 2) Precautions for assay range
If the concentration of sample exceeds assay range, dilute the sample with saline and repeat the measurement.

Dosage/Administration (Assay Procedure) **

1. Preparation of reagents

Reagent (1): CA Reagent 1 is ready to use.
Reagent (2): CA Reagent 2 is ready to use.

2. Assay Procedure

This product is compatible with various types of automated analyzer. An example of the assay procedure is indicated below.

Sample 5 μL	+	Reagent (1) 200 μL	→	37°C 5 min	Reagent (2) 200 μL	→	37°C 5 min	Measurement (Absorbance*)	
								→	Calculation of concentration

*Absorbance: The difference in absorbance between 660 nm and 600 nm.
 Calibration material: Serum Multicalibrator (SEKISUI), Seronorm Multicalibrator, Seronorm Human, or Anaserum CA Standard Solution. (manufacture's assigned value)
 Reagent blank: Purified water or saline

Assessment of Assay Results **

1. Reference standard range⁴⁾

In serum: 8.8–10.1 mg/dL (Within the JCCLS common standard)

In urine: 0.1–0.3 g/day

2. Precautions for Assessment

There may be reactions or interfering reactions with non-target substances. If assay results appear to be unreliable, repeat the measurement (if necessary, after dilution) or try another analytical methods.

Performance *

1. Sensitivity

- 1) Reagent blank: absorbance being 0.10–0.20
- 2) Sensitivity: The absorbance is 0.27–0.33 per 10 mg/dL of calcium.

2. Accuracy: 90–110 % of the expected assay value

3. Within-run Reproducibility:

Coefficient of variation: $\leq 3\%$
 (Test methods used for 1.–3. are in-house methods.)

4. Measurement Range⁵⁾: (On Hitachi 7170S automated analyzer)

0.2–20 mg /dL

5. Correlation⁵⁾

- 1) Serum N=60 $r=0.986$ $y=1.03x-0.31$
 Control method: Approved in vitro diagnostic (OCPC method)
- 2) Urine N=55 $r=0.998$ $y=0.973x+0.41$
 Control method: Approved in vitro diagnostic (OCPC method)

6. Standard Material

SRM915 (NIST)

Precautions for Use or Handling *

1. Precautions for Handling (to Ensure Safety)

- 1) All samples used in the test should be handled as a material possibly infected with HIV, HBV, HCV, or other viruses. To prevent infection, use disposable gloves and avoid mouth pipetting during the test.
- 2) CA Reagent 1 and CA Reagent 2 contain monoethanolamine and hydrochloric acid, respectively. If these substances are accidentally ingested or come into contact with the eyes or skin, immediately implement first-aid measures such as rinsing the area with water and seek medical treatment if necessary.
- 3) Synthetic isoparaffin (used to protect CA Reagent from exposure to air) belongs to the Class III petroleum under Category IV of inflammable liquids according to the Fire Service Act. Do not place it near an open flame

or heat.

2. Precautions for use

- 1) This product should be stored as directed, without freezing. Freezing can deteriorate the reagents, which can produce inaccurate results. Therefore, avoid using the reagents which have been previously frozen.
- 2) Do not use expired reagents. Use of such reagents cannot guarantee the reliability of measurement values.
- 3) When this product is used in some analyzers equipped with plastic cells, the cells may be affected. Contact SEKISUI MEDICAL to determine compatibility.
- 4) Do not replenish the reagent or transfer it to another container, because the thickness of the layer of the superimposed synthetic isoparaffin will be altered.
- 5) Do not perform the assay under direct sunlight
- 6) Exercise caution. If the residual amount of reagent is too small, there is a risk that synthetic isoparaffin will enter the automated analyzer.
- 7) Use CA Reagent 1 after it has been let stand for at least 10 minutes.
- 8) Clean the cells every day after completion of measurement.

3. Precautions for Disposal

- 1) Before disposal, used samples and their containers must be immersed in sodium hypochlorite solution at a concentration of greater than 0.1 % for longer than 1 hour or autoclaved at 121°C for 20 minutes.
- 2) To prevent infections from spilled samples or solutions containing samples, wipe the spilled area thoroughly with disinfectants such as sodium hypochlorite solution at a concentration of greater than 0.1%.
- 3) The reagents and treated samples should be discarded as medical waste or industrial waste according to the waste disposal regulations.
- 4) The reagents should be disposed of in accordance with the Water Pollution Control act or related regulations.
- 5) Dispose of CA Reagent 2 after use together with the superimposed synthetic isoparaffin as industrial waste.

4. Other precautions

Do not use the containers for other purposes.

Storage and Shelf Life *

1. Storage temperature: 2–10 °C
2. Shelf life: 2 years from the date of manufacture (The expiration date is printed on the outer package.)

Packaging *

Name		Package
Autosera CA for PTS	CA Reagent 1	2 × 50 mL
	CA Reagent 2	2 × 50 mL

References **

- 1) Sasaki M. et al. Sampling of constituents of the

- human body. Tokyo: Kodansha; 1972. Japanese.
- 2) Hyunseok P.K. et al.: Clin Chem. 50:4 2004.
 - 3) OMNISCAN INTRAVENOUS INJECTION SYRINGE 32% (1st ed.) [Instructions for Use] March 2020. Japanese.
 - 4) Kanai M, editor. Kanai's manual of clinical laboratory medicine. 35th ed. Tokyo: Kanehara Shuppan; 2020. Japanese.
 - 5) SEKISUI MEDICAL CO., LTD. In house data. Japanese.

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