

Overview

Useful For

Indication of fluid balance and acid-base homeostasis using a 24-hour urine collection

Special Instructions

- [Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens](#)

Method Name

Potentiometric, Indirect Ion-Selective Electrode (ISE)

NY State Available

No

Specimen

Specimen Type

Urine

Necessary Information

24-Hour volume (in milliliters) is required.

Specimen Required

Supplies: Sarstedt 5 mL Aliquot Tube (T914)

Collection Container/Tube: 24-Hour graduated urine container with no metal cap or glued insert

Submission Container/Tube: Plastic, 5 mL tube or a clean, plastic aliquot container with no metal cap or glued insert

Specimen Volume: 4 mL

Collection Instructions:

1. Collect urine for 24 hours.
2. Refrigerate specimen within 4 hours of completion of 24-hour collection.

Additional Information: See [Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens](#) for multiple collections.

Forms

If not ordering electronically, complete, print, and send a [Renal Diagnostics Test Request](#) (T830) with the specimen.

Urine Preservative Collection Options

Note: The addition of preservative or application of temperature controls **must occur within 4 hours of completion** of the collection.

Ambient	OK
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Refrigerate	Preferred
Frozen	OK
50% Acetic Acid	OK
Boric Acid	OK
Diazolidinyl Urea	OK
6M Hydrochloric Acid	No
6M Nitric Acid	No
Sodium Carbonate	OK
Thymol	OK
Toluene	No

Specimen Minimum Volume

1 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Ambient	7 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Chloride is the major extracellular anion. Its precise function in the body is not well understood; however, it is involved in maintaining osmotic pressure, proper body hydration, and electric neutrality. In the absence of acid-base disturbances, chloride concentrations in plasma will generally follow those of sodium.

Since urine is the primary mode of elimination of ingested chloride, urinary chloride excretion during steady state conditions will reflect ingested chloride, which predominantly is in the form of sodium chloride. However, under certain clinical conditions, the renal excretion of chloride may not reflect intake. For instance, during states of extracellular volume depletion, urine chloride (and sodium) excretion is reduced.

Reference Values

> or =18 years: 34-286 mmol/24 hours

Reference values have not been established for patients who are less than 18 years of age.

Reference values apply to 24-hour collection.

Interpretation

Urine sodium and chloride excretion are similar, and, under steady-state conditions, both the urinary sodium and chloride excretion reflect the intake of sodium chloride. During states of extracellular volume depletion, low values indicate appropriate renal reabsorption of these ions, whereas elevated values indicate inappropriate excretion (renal wasting). Urinary sodium and chloride excretion may be dissociated during metabolic alkalosis with volume depletion where urine sodium excretion may be high (due to renal excretion of sodium bicarbonate), while urine chloride excretion remains appropriately low.

Cautions

High urine values of other halide ions (eg, bromide, fluoride, iodide) may lead to falsely high readings on the chloride ion-selective electrode.

Clinical Reference

1. Delaney MP, Lamb EJ: Kidney disease. In: Rifai N, Horvath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:1308-1309
2. Kamel KS, Ethier JH, Richardson RM, Bear RA, Halperin ML: Urine electrolytes and osmolality: when and how to use them. Am J Nephrol. 1990;10(2):89-102

Performance**Method Description**

An ion-selective electrode (ISE) makes use of the unique properties of certain membrane materials to develop an electrical potential (electromotive force: EMF) for the measurements of ions in solution. The electrode has a selective membrane in contact with both the test solution and an internal filling solution. The internal filling solution contains the test ion at a fixed concentration. Because of the particular nature of the membrane, the test ions will closely associate with the membrane on each side. The membrane EMF is determined by the difference in concentration of the test ion in the test solution and the internal filling solution.(Package insert: ISE indirect Na, K, Cl for Gen.2. Roche Diagnostics; V13.0 04/2016)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

1 to 2 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Jacksonville Clinical Lab

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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

82436

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CLU	Chloride, 24 HR, U	43128-8

Result ID	Test Result Name	Result LOINC® Value
CL24H	Chloride, 24 HR, U	2079-2
TM30	Collection Duration	13362-9
VL28	Urine Volume	3167-4