

**Overview****Useful For**

Assessing acid-base balance, water balance, water intoxication, and dehydration

**Method Name**

Potentiometric, Indirect Ion-Selective Electrode (ISE)

**NY State Available**

Yes

**Specimen****Specimen Type**

Urine

**Specimen Required**

**Supplies:** Aliquot Tube, 5 mL

**Container/Tube:** Plastic, 5-mL tube (T465)

**Specimen Volume:** 4 mL

**Collection Instructions:**

1. Collect a random urine specimen.
2. No preservative.

**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	
	Frozen	14 days	
	Ambient	7 days	

**Clinical and Interpretive**

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**Clinical Information**

Sodium (Na<sup>+</sup>) is the primary extracellular cation. Na<sup>+</sup> is responsible for almost one-half the osmolality of the plasma and, therefore, plays a central role in maintaining the normal distribution of water and the osmotic pressure in the extracellular fluid compartment. The amount of Na<sup>+</sup> in the body is a reflection of the balance between Na<sup>+</sup> intake and output. The normal daily diet contains 8 to 15 grams of sodium chloride (NaCl), which is nearly completely absorbed from the gastrointestinal tract. The body requires only 1 to 2 mmol/day, and the excess is excreted by the kidneys, which are the ultimate regulators of the amount of Na<sup>+</sup> (and thus water) in the body. Na<sup>+</sup> is freely filtered by the glomeruli. Approximately 70% to 80% of the filtered Na<sup>+</sup> is actively reabsorbed in the proximal tubules with chloride and water passively following in an iso-osmotic and electrically neutral manner. Another 20% to 25% is reabsorbed in the loop of Henle along with chloride and more water. In the distal tubules, interaction of the adrenocortical hormone aldosterone with the coupled sodium-potassium and sodium-hydrogen exchange systems directly results in the reabsorption of Na<sup>+</sup> and indirectly of chloride from the remaining 5% to 10% of the filtered load. It is the regulation of this latter fraction of filtered Na<sup>+</sup> that determines the amount of Na<sup>+</sup> excreted in the urine.

**Reference Values**

No established reference values.

**Interpretation**

Urinary sodium (Na<sup>+</sup>) excretion varies with dietary intake, and there is a large diurnal variation with the rate of Na<sup>+</sup> excretion during the night being only 20% of the peak rate during the day.

Na<sup>+</sup> may be lost in the kidneys as a result of diuretic therapy, salt-losing nephropathies, or adrenal insufficiency, with the urinary Na<sup>+</sup> concentration usually more than 20 mEq/L. In these hypovolemic states, urine Na<sup>+</sup> values less than 10 mEq/L indicate extrarenal Na<sup>+</sup> loss. In hypervolemic states, a low urine Na<sup>+</sup> (<10 mEq/L) may indicate nephrotic syndrome in addition to nonrenal causes.

**Cautions**

No significant cautionary statements.

**Clinical Reference**

Tietz Textbook of Clinical Chemistry. Third edition. Edited by CA Burtis, ER Ashwood. Philadelphia, WB Saunders Company, 2001

**Performance****Method Description**

Ion-selective electrode using a diluted specimen. (Package insert: Roche Diagnostics, Indianapolis, IN)

**PDF Report**

No

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

Monday through Sunday; Continuously

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

2 days

**Specimen Retention Time**

7 days

**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 has been cleared, approved or is exempt by the U.S. 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**

84300

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
RNAUR	Sodium, Random, U	2955-3

Result ID	Test Result Name	Result LOINC Value
RNAUR	Sodium, Random, U	2955-3