CHLORIDE

INTENDED USE

Vitro Chloride reagent is intended for the determination of chloride in human serum , plasma and urine on both automated and manual systems

METHOD

Thiocyanate Method.

BACKGROUND

Chloride is the most abundant extracellular anion. Together with natrium-chloride is responsible for the maintenance of osmotic pressure, the anion-cation balance and therefore of the water distribution in the extracellular fluid compartment.Decreased plasma Cl—concentrations (hypochloremia) can result from salt-losing nephritis, persistent gastric secretion, prolonged vomiting and metabolic acidosis that are caused by increased production or reduced secretion of organic acids. Increased plasma Cl--concentrations (hyperchloremia) occur with dehydration, renal tubular acidosis, acute renal failure, in adrenocortical hyperfunction , salicylate intoxication and metabolic acidosis associated with prolonged diarrhoea and loss of sodium bicarbonate. Chloride is often analyzed in combination with natrium and kalium to determine the anion gap in serum and/or urine. The urinary anion gap is useful in the initial evaluation of hyperchloremic metabolic acidosis.Due to the different reactivity equivalents of chloride and bromide the thiocyanate method is less disturbed by the presence of bromide than measurement with an ionselective electrode.

ASSAY PRINCIPLE

Chloride ions and Hg II-thiocyanate form thiocyanate ions in acidic medium. These ions react with HNO3 and FE III-ions and effect a red colour. The increasing extinction is directly proportional to the concentration of chloride ions.

EXPECTED VALUES

Serum: 97 – 108 mmol/l
Urine 24 h urine 95 – 240 mmol/24h

morning urine 54 – 158 mmol/l

Each laboratory should investigate the transferability of the expected values to its own patient population and if necessary determine its own reference range.

REAGENTS

R1 Standard	100 mmol/l	
R 2 Buffer	Hg – II - thiocyanate	2 mmol/l
	Fe – III - nitrate	30 mmol/l
	HNO3	40 mmol/l

- **Reagent Preparation & Stability**

- All the components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8°C protected from light and contaminations prevented during their use. Do not use reagents over the expiration date.

SPECIMEN

Serum
Separate serum from the clot and cells within 45 min.
Urine.
Urine has to be diluted 1+2 with distilled water. Multiply result by 3.

Centrifuge samples containing precipitate before performing the assay.

PROCEDURE

- **Manual Procedure**

Wavelength	460 - 500 nm
Cuvette	1 cm light path
Temperature	RT
Zero adjustment	against reagent blank
Specimen	Serum or plasma or urine

	Blank	Standard	Specimen
R2	1.0 ml	1.0 ml	1.0 ml
Standard	……	10 µl	……
Specimen	……	……	10 µl

Mix, and Incubate for 5 minutes at room temperature Measure the absorbance of specimen ($A_{specimen}$) and standard ($A_{standard}$) against reagent blank.

The color is stable for 60 minutes.

- **Automated Procedure**

User defined parameters for different auto analyzers are available upon request.

CALCULATION

Calculate the Chloride concentration in serum by using the following formulae

Chloeide Concentration=

$$\frac{\text{Absorbance of Specimen}}{\text{Absorbance of Standard}} \text{ X Standard value}$$

Conversion between conventional and SI units: 1 mEq/l = 1 mmol/l
Conversion between mmol/l and mg/dl: mmol/l = 0.282 x mg/dl

QUALITY CONTROL

It is recommended that controls (normal and abnormal) be included in:

- Each set of assays, or
- At least once a shift, or
- When a new bottle of reagent is used, or
- After preventive maintenance is performed or a clinical component is replaced.

Commercially available control material with established potassium values may be routinely used for quality control.
Failure to obtain the proper range of values in the assay of control material may indicate:

- Reagent deterioration,
- Instrument malfunction, or
- Procedure errors.

The following corrective actions are recommended in such situations:

- Repeat the same controls.
- If repeated control results are outside the limits, prepare fresh control serum and repeat the test.
- If results on fresh control material still remain outside the limits, then repeat the test with fresh reagent.
- If results are still out of control, contact Vitro Technical Services.

WARNING & PRECAUTION

For in vitro diagnostic use.
Exercise the normal precautions required for all laboratory reagents.
Contains mercuric thiocyanate. Toxic, harmful if inhaled or absorbed through skin. Consider local disposal regulations.

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INTERFERING SUBSTANCES

Criterion: Recovery within ±10% of initial value.
Icterus: No significant interference up to a bilirubin concentration of 30 mg/dl.
Hemolysis: No significant interference up to a haemoglobin concentration of 1000 mg/dl.
Lipemia (Intralipid): No significant interference up to a triglyceride concentration of 400 mg/dl.

LINEARITY

When run as recommended, the assay is linear Up to 130 mmol/l
Dilute samples having higher concentrations 1+1 with the identical volume aqua dest. Multiply the result by factor 2

BIBLIOGRAPHY

1.Bablok W. et al. A General Regression Procedure for Method Transformation. J Clin Chem Clin Biochem 1988;26:783-790.
2. Batlle DC. et al. The use of the urinary anion gap in the diagnosis of hyperchloremic metabolic acidosis. N Engl J Med 1988, 318:594-599.
3. Krieg M. et al. Comparative quantitative clinico-chemical analysis of the characteristics of 24-hour urine and morning urine (in German). J Clin Chem Clin Biochem 1986, 24:863.
4. Passing H., Bablok W. A New Biometrical Procedure for Testing the Equality of Measurements from Two Different Analytical Methods. J Clin Chem Clin Biochem 1983;21:709-720.
5. Schönfeld, RG. Lewellen, CJ. A colorimetric method for determination of serum chloride. Clin Chem., 10, 533 (1964)
6. Tietz N.W. Clinical Guide to Laboratory Tests, 3rd Philadelphia: W.B. Saunders Company, 1995:516-519.

SYMBOL DECLARATION

	Manufacturer
	Consult instructions for use
LOT	Batch code (Lot #)
REF	Catalog number
	Temperature limitation
IVD	In vitro diagnostic medical device
	Use by
	Caution. Consult instructions
	Keep away from light

ORDERING INFORMATION

REF	SIZE
1541	2 X 50 ml
1542	2 X 100 ml

Manufactured in Egypt by:
Vitro Scient
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