ESTROM Chloride
(Thiocyanate Method)

ANGSTROM BIOTECH PVT. LTD

This reagent kit is for quantitative estimation of chloride in serum.

PRINCIPLE:
Mercuric thiocyanate present in the reagent reacts with chloride ions present in the sample, forming mercuric chloride and free thiocyanate ions. Ferric ions present in the reagent reacts with these free thiocyanate ions to form a coloured complex. The intensity of the colour produced is measured at 480nm (470-510 nm) and is proportional to the chloride ions present in the sample.

$2Cl^- + Hg(SCN)_2 \longrightarrow HgCl_2 + 2SCN^-$

$3SCN^- + Fe^{+++} \longrightarrow Fe(SCN)_3$ (RED-BROWN COLOURED PRODUCT)

CLINICAL SIGNIFICANCE:
Chloride is a major extracellular anion. It plays a major role in maintaining water and electrolytebalance in the extra cellular compartment. Hence the determination of chloride concentration in the serum is of immense importance in understanding the maintenance of osmotic pressure, fluid distribution and pH of the body. Losses in Chloride due to sweating and urination is balanced by dietary intake and reabsorbation of Chloride ions. This balance is controlled by corticosteroid hormones, which control mineral metabolism. Hypochloremia is observed in chronic pyelonephritis, diabetic ketoacidosis or renal failure and also in case of prolonged vomitting. Hyperchloremia is observed with dehydration, renal tubular acidosis, acute renal failure, metabolic acidosis, congestive heart failure etc.

SPECIMEN COLLECTION AND STORAGE:
- It is essential to use fresh, clear unhemolysed serum.
- Serum is stable for four hours at room temperature and two days at 2-8° C.

PRECAUTION :
- Estrom Chloride reagent is for In Vitro diagnostic use only.
- All the glasswares used for testing should be free of chloride contamination.

REAGENTS :
All the reagents may be stored at 2-8° C.

	No. of bottles	
	2x50 (ml)	2 x 100 (ml)
Reagent 1 (Chloride Reagent)	2	2
Standard (100 mmols/L)	1	1

REAGENT RECONSTITUTION:
This reagent is ready to use.

REAGENT STORAGE AND STABILITY:
All reagents are stable at 2-8°C up to the expiry date stated on the label.

GENERAL INSTRUMENT PARAMETERS:

Reaction Type	: End Point
Reaction Slope	: Increasing
Wavelength	: 480 nm (470 - 510 nm)
Flowcell Temperature	: 30° C
Reagent 1 volume	: 1.0 ml
Sample Volume	: 10 µl (0.01 ml)
Std. Concentration	: 100 mmols/l
Units	: mmols/l
Zero Setting	: Reagent Blank
Path length	: 1 cm

PROCEDURE:
Allow the sample and reagent to attain room temperature prior to use:

Dispense in to test tubes	Blank	Standard	Test
Reagent 1 (ml)	1.0	1.0	1.0
Standard (µl)	-	10	-
Sample (µl)	-	-	10

Incubate at RT for 5 minutes. Mix well and read at 480 nm (470-510 nm) or against blue-green filter.

The reagent and standard/sample volumes may be doubled in case of instrument with larger cuvette capacity.

The colour of the reaction mixture is stable for 30 minutes.

LINEARITY:
This method is linear for Chloride values between 75 mmols/L to 150 mmols/L. For samples with values lower than 75 mmols/L, the sample volume may be increased and for those with values higher than 150 mmols/L dilute the sample using distilled water, and repeat the assay. Apply proper dilution factor while calculation.

CALCULATION:

$$\text{Conc. of Chloride in sample (mmols / L)} = \frac{\text{Abs. of Test}}{\text{Abs. of Std}} \times 100$$

REFERENCE VALUES :
Serum Chloride = 98-109 mmols/L (meq/L)

BIBLIOGRAPHY:

- Schoenfeld R.C. et al, Clin.Chem., 10 (1964), 533.
- Schales O., et al, J. Biol. Chem, 140 (1941), 879.

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⚠	Attention,see instructions for use		Consult Instructions For Use
IVD	For in vitro diagnostic use only	REF	Catalog #
	Store at RT	LOT	Lot Number
	Do not use if package is damaged		Date of Manufacturing
	Manufacturer		Use by