CHLORIDE

Colorimetric Method

Cat.No. 101-0283 *Size 2 x 100 ml*
Cat.No. 101-0451 *Size 8 x 100 ml*

PRINCIPLE:

By adding of Hg-thiocyanat to serum, mercurous chloride ($HgCl_2$) is formed in acid medium. SCN- liberated reacts with Fe from iron nitrate producing the red $Fe(SCN)_3$. Color intensity is proportional to the concentration of chloride-ions.

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

$$3SCN^- + Fe^{3+} \longrightarrow Fe(SCN)_3$$

SAMPLE:

Serum, plasma, spinal fluid or urine. Urine has to be diluted 1:2 with distilled water.
Stability up to 30 days at +2 °C to +8 °C.

REAGENTS:

1. Chromogen

Mercuric thiocyanate $Hg(CNS)_2$	2 mmol/L
Iron nitrate	30 mmol/L
Nitric acid	40 mmol/L
Stabilizers and fillers	

2. Standard

Chloride Standard concentration see on the vial label
Stabilizers and fillers

Keep reagents in dark. Store at +15 °C to +25 °C.

PROCEDURE:

Method:	End Point
Wavelength:	470 nm (460 - 480 nm)
Cuvette:	1 cm light path
Temperature:	room temperature
Color stability:	30 min
Zero:	reagent blank

Pipette into test tubes:	Reagent blank	Standard	Sample
Chromogen	1000 µl	1000 µl	1000 µl
Standard	-	10 µl	-
Sample	-	-	10 µl
Mix, after 5 min. read absorbance of sample and standard against reagent blank.			

NOTE:

Volumes can be proportionally changed.

CALCULATION:

$$\frac{A_{sample}}{A_{standard}} \times \text{stand.conc.} = \text{mmol/L chloride}$$

EXPECTED VALUES:

Serum, plasma	95 -105 mmol/L (337 - 372 mg/dl)
Spinal fluid	115 - 130 mmol/L (408 - 460 mg/dl)
Urine	140 - 250 mmol/dU (4960 - 8870 mg/24h)

LINEARITY:

up to 130 mmol/L (462 mg/dl)

QUALITY CONTROL:

CONTRO-N	20 x 5 ml	Cat. No. 101-0083
CONTRO-P	20 x 5 ml	Cat. No. 101-0084

NOTE:

1. Interfering substances: ascorbic acid decrease chloride value. Salicylates, L-DOPA, EDTA, and oxalates give higher chloride values.

2. Precautions: avoid contamination of glassware with chloride. We recommend the use of disposable materials.

REFERENCES:

1. Shoenfeld R.G. Lowellen C.S.: Clin.Chem. 10, 533 (1964).
2. Giraudet P.et al., Clin. Chim. Acta 28, 323 (1970).
3. Elin E.I. et al., Clin. Chem., 27, 778 (1981).