

Chloride

Hg(SCN)₂ Monoreagent



Cat.No	Package Size	
116 000	2 x 50 ml	incl. Standard
116 001	4 x 100 mL	incl. Standard
116 016	9 x 10 ml	incl. Standard
116 003	(Hit I)	4 x 50 mL
116 006	(AU)	4 x 70 mL

PRINCIPLE:

In HNO₃ - acidic solution thiocyanate ions are set free through the reaction of chloride ions with mercury-II-thiocyanate. The thiocyanate ions and iron-III form a red coloured solution. The measured colour intensity is proportional to the concentration of chloride ions .

REAGENTS (ready for use)

Monoreagent

Hg(II)thiocyanate	1 mmol/l
Fe-III-nitrate	30 mmol/l
Nitric acid	31 mmol/l
Standard Chloride	100 mmol/l

Storage and Stability

The sealed reagents are stable up to the indicated expiry date if stored at 2°- 25°C and protected from light.

SAMPLE MATERIAL:

Serum, Plasma, Urine

(Dilute urine 1+1 with dist.water, multiply result by 2)

REFERENCE VALUES:

Serum:

Adults	95 – 105 mmol/l
Children	
1 – 7 days	96 – 111 mmol/l
7 – 30 days	96 – 110 mmol/l
1 – 6 months	96 – 110 mmol/l
6 months – 1 year	96 – 108 mmol/l
< 1 year	96 – 109 mmol/l

Urine:

120 - 240 mmol/24h (248-887 mg/24h)

ASSAY PROCEDURE

Wavelength : 492 nm Hg (480-550 nm)
 Light path: 1 cm
 Temperature : 20 - 37°C

Read against reagent blank (R-Blank)

	R-BLANK	STANDARD	SAMPLE
R1	1 mL	1 mL	1 mL
Standard	-	10 µL	-
Sample	-	-	10 µL

Mix and after 5 min read the absorbance of sample A_{SAMPLE} against absorbance Reagent Blank A_{RBL} .

The final color is stable for at least 1 hour.

$$\Delta A_S = A_{SAMPLE} - A_{RBL}$$

$$\Delta A_{STD} = A_{STD} - A_{RBL}$$

CALCULATION:

$$\frac{\Delta A_S}{\Delta A_{STD}} \times 100 = \text{Chloride (mmol/l)}$$

$$\frac{\Delta A_S}{\Delta A_{STD}} \times 354.6 = \text{Chloride (mg/dl)}$$

CALIBRATION / QUALITY CONTROL

For the calibration of automated analyzers Greiner Multicalibrator is recommended, for quality control use Greiner normal and abnormal controls Unitrol I and Unitrol II .

PERFORMANCE DATA (37°C)

- Analytical range

The reagent is linear up to 140 mmol/l.
At higher concentrations dilute with dist.water
in the ratio 1 + 1, multiply result by 2 .

- Detection limit

The detection limit is 0.5 mmol/l

- Specificity and Interferences

There are no interferences with ascorbic acid up
to 100 mg/dl, hemoglobine up to 300 mg/dl,
bilirubine up to 30 mg/dl and lipemia
(triglycerides) up to 400 mg/dl.

- Precision

Within-run reproducibility

N = 11

	Mean (mmol/l)	SD (mmol/l)	CV (%)
Control 1	86,9	0,385	0,44
Control 2	113,2	0,603	0,53
Patient	111,3	0,647	0,58

Between-run reproducibility

N = 11

	Mean (mmol/l)	SD (mmol/l)	CV (%)
Control 1	85,8	1,18	1,34
Control 2	113,8	1,83	1,61
Patient	110,0	1,27	1,15

- Correlation

A comparative study has been performed
between the Greiner method and another
commercial reagent on 19 human serum
samples. The parameters of linear regression
are as follows:

$$y = 1,063 x - 8,63 \text{ (mmol/l)} \quad r = 0,992.$$

BIBLIOGRAPHY

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2. Scott GS, Heusel JW, LeGrys VA, Siggard-Andersen O. Electrolytes and blood gases. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3rd ed. Philadelphia: W.B Saunders Company; 1999. p. 1056-94.
3. Schoenfeld RG, Lewellen CJ. A colorimetric method for determination of serum chloride. Clin Chem 1964;10:533-9.

SYMBOLS USED



For *in vitro* diagnostic medical use



Batch Code



Use by



Temperature limitation