Chloride
Hg(SCN)₂ Monoreagent

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)

<table>
<thead>
<tr>
<th>R-BLANK</th>
<th>STANDARD</th>
<th>SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>1 mL</td>
<td>1 mL</td>
</tr>
<tr>
<td>Standard</td>
<td>-</td>
<td>10 µL</td>
</tr>
<tr>
<td>Sample</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Mix and after 5 min read the absorbance of sample Aₐₙₙₚₐₛₑₐₑ sample A_RBL.
The final color is stable for at least 1 hour.

∆Aₐₙₚₐₚₑₐₑ = Aₐₚₑₐₑ - A_RBL
∆Aₐₚₑₐₑ = A_STD - A_RBL

CALCULATION:

∆Aₐₚₑₐₑ x 100 = Chloride (mmol/l)

∆A_STD x 354.6 = 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, hemoglobin 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

<table>
<thead>
<tr>
<th></th>
<th>Mean (mmol/l)</th>
<th>SD (mmol/l)</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control 1</td>
<td>86,9</td>
<td>0,385</td>
<td>0,44</td>
</tr>
<tr>
<td>Control 2</td>
<td>113,2</td>
<td>0,603</td>
<td>0,53</td>
</tr>
<tr>
<td>Patient</td>
<td>111,3</td>
<td>0,647</td>
<td>0,58</td>
</tr>
</tbody>
</table>

Between-run reproducibility
N = 11

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<tr>
<td>Control 1</td>
<td>85,8</td>
<td>1,18</td>
<td>1,34</td>
</tr>
<tr>
<td>Control 2</td>
<td>113,8</td>
<td>1,83</td>
<td>1,61</td>
</tr>
<tr>
<td>Patient</td>
<td>110,0</td>
<td>1,27</td>
<td>1,15</td>
</tr>
</tbody>
</table>

- **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:

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

BIBLIOGRAPHY


SYMBOLS USED

- **IVD**
  For in vitro diagnostic medical use

- **LOT**
  Batch Code

- **Used by**
  Temperature limitation

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