

## PRINCIPLE OF THE METHOD

Zinc reacts with NITRO-PAPS yielding at room temperature an intensely coloured complex which intensity is proportional to the concentration of the Zinc present in the sample. The method doesn't need de-proteinization, neither sample blank.

## TEST PERFORMANCE

### Precision

Intra-assay (n=10)	Mean (µg/dL)	SD (µg/dL)	CV (%)
Sample 1	148,5	2,456	1,65
Sample 2	224,4	1,831	0,82

Inter-assay (n=30)	Mean (µg/dL)	SD (µg/dL)	CV (%)
Sample 1	143,3	1,485	1,03
Sample 2	218,7	1,603	0,73

### Method comparison

Results obtained on the same samples with an equivalent method have done the following data:

$$y = 0,9931x - 1,0654$$

$$R = 0,9996$$

$$n = 18$$

### Sensitivity/limit of detection

The method is able to discriminate until 3 µg/dL.

### Linearity

The method is linear up to 1000 µg/dL.

## SAMPLE

Serum, plasma with heparin as anticoagulant.  
Urine 24 hours.

### Note:

- Avoid use of hemolyzed sample.
- Zinc in the sample is stable for 8 days at +2-8°C.
- Strong lipemic serum can interfere with the measurement. Centrifuge or filtrate the sample before testing.

## REFERENCE VALUE

### SERUM AND PLASMA

70 – 115 µg/dL	10.7 – 17.6 µmol/L
----------------	--------------------

### URINE

100 – 1000 µg/24h	15.3 – 153 µmol/24h
-------------------	---------------------

## REAGENTS - INITIAL CONCENTRATION

<b>Reagent 1</b>	Borate buffer 0,37 M pH 8.2 Salicilaldehyde 12,5 mM Dimethylglyoxime 1.25 mM Surfactants and preservatives.	5x8mL	REF: 1060001
<b>Reagent 2</b>	NITRO-PAPS; 0,4 mM Preservatives.	1x10mL	REF: 1060002
<b>Standard</b>	Standard Zinc ion 200 µg/dL	1x5 mL	REF: 1060003

## REAGENTS -STORAGE AND STABILITY

<b>Kit:</b>	Store at +2-8°C. Stable until the expiry date shown on the label.
<b>Working Reagent:</b>	Store at +2-8°C. Stable 15 days.
<b>Opened reagents:</b>	Reagents are stable after opening until the expiry date shown on the bottles when are protected from direct light, tightly closed, and stored at reported temperature.

## REAGENTS - PREPARATION

Reagents are liquid ready to use.

To prepare the Working Reagent add 2 mL of Reagent 2 to a vial of Reagent 1. Alternately mix 4 volumes of Reagent 1 with 1 volume of Reagent 2 depending on the number of sample.

## REAGENTS – PRECAUTION AND WARNING

- This method describes the manual use of this kit. For use with automatic analyzer see the specific applications.
- Quality control data sheet of the reagents are available upon request. Refer to the batch number on the label.

## ADDITIONAL EQUIPMENT

Pipettes  
Spectrophotometer  
Cuvettes with 1 cm lightpath.

## SAFETY PRECAUTIONS

### Reagent 1



### Danger

- Causes serious eye damage [H318]
- Harmful to aquatic life with long lasting effects.[H412]
- Contact with acids liberates very toxic gas.[ EUH032]
- Wear protective gloves/protective clothing/eye protection/face protection. [P280]
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. [P305 + P351 + P338]
- Immediately call a POISON CENTER or doctor/physician. [P310]

### Reagent 2

The product is not classified as dangerous

### Standard

The product is not classified as dangerous

## WASTE MANAGEMENT

Please refer to local legal requirements.

## ANALYTICAL PROCEDURE

Wavelength	λ = 578(520 or 570) nm
Lightpath	1 cm
Temperature	Room temperature (+20-25°C)
Measurement	Against reagent blank
Reaction	end point (increase)

Allow reagents to reach working temperature before using.

Working reagent	BLANK	STANDARD	SAMPLE	
	1000	1000	1000	µL

Mix thoroughly and incubate for 1 minute at room temperature (+20-25°C).

Measure the absorbance of the Sample and the Standard against the blank (ABS1).

Distilled water	50	-	-	µL
Sample	-	-	50	µL
Standard	-	50	-	µL

Mix thoroughly and incubate for 5 minutes at room temperature (+20-25°C).

Measure the absorbance of the Sample and the Standard against the blank (ABS2). The colour is stable for at least 30 minutes at (+20-25°C), protected from direct light

## CALCULATIONS

Serum, plasma or Urine:

$$\text{Zinc (µg/dL) or (µg/24h)} = \frac{\text{ABS2 Sample} - (\text{ABS1 Sample} \times 0,952)}{\text{ABS2 Standard} - (\text{ABS1 Standard} \times 0,952)} \times [\text{Standard}]$$

### Conversion factor:

$$\text{Zinc (µg/dL)} \times 0.1529 = \text{Zinc (µmol/l)}$$

## QUALITY CONTROL

Each laboratory should establish its own internal Quality control scheme and procedures for corrective action if controls do not recover within the acceptable tolerances.

## BIBLIOGRAPHY

1. Pasquini F., Diagnostica e Tecniche di Laboratorio, (pag.: 1099-1102) Rossini Ed. (1984).
2. TETSUO MAKINO, Chimica Clinica Acta 197, 209-220 (1991)
3. MARINGONI A., ILLUZZI R., ATB 1991 Abstract.

## SYMBOLS



Read use instruction



Manufactured by



Size/number of tests



In Vitro Diagnostic Medical Device



CE mark declaring compliance with the In Vitro Diagnostics Medical Device Directive, 98/79/EC



Catalogue number



Store at +15-25°C



Batch number



Store at +2-8°C



Vial content