

# Zinc

## (Colorimetric Method with 5-Brom-PAPS)

IVD

REF.	Pack size
225 01 050	( 1 x 50 ml) 50 tests
225 02 030	( 2 x 30 ml) 60 tests
225 05 030	( 5 x 30 ml) 150 tests

### Intended Use

Zinc reagent is intended for the in-vitro quantitative and diagnostic determination of Zinc in human serum, plasma or urine.

### Introduction

Zinc is an essential element in the nutrition of human beings, zinc is required in the genetic make-up of every cell and is an absolute requirement for all biologic reproduction.

Zinc is needed in all DNA and RNA synthesis and is required at every step of the cell cycle.

About 2 grams of zinc is distributed throughout the body human. Hypozincemia is a condition where insufficient zinc is available for metabolic needs. The deficiency may lead to anorexia, diarrhea and pneumonia or cognitive and motor function impairment in children. Zinc deficiency during pregnancy can negatively affect both the mother and fetus.

### Method

Colorimetric Method with 5-Bromo-PAPS.

### Principle

Zinc forms with 2-(5-Bromo-2-pyridylazo)-5-(N-propyl-N-sulfopropylamino)-phenol a red chelate complex.

The increase of absorbance can be measured and is proportional to the concentration of total zinc in the sample.

### Reagents

<b>Reagent</b>	
5-Br-PAPS	0.02 mmol/L
Bicarbonate buffer pH 9.8	200 mmol/L
Sodium Citrate	170 mmol/L
Dimethylglyoxime	4 mmol/L
Detergent	1 %

**Standard** 200 µg/dL (30.6 µmol/L)

### Reagents preparation, storage and stability

The reagent is supplied ready-to-use and stable till the expiration date stated on label when stored refrigerated at 2 - 8 °C. Once opened, the reagent and the standard are stable for 3 month at the specified temperature.

### Deterioration

Failure to recover the control values within assigned range may indicate reagent deterioration.

### Precautions and Warnings

Do not ingest or inhale. In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.

### Specimen collection and preservation

Serum, Plasma or Urine

### Procedure

Wavelength	560 nm
Optical path	1 cm
Assay type	Colorimetric End point
Sample : Reagent Ratio	1 : 20
Temperature	25 °C or 37 °C
Zero adjustment	Against Reagent Blank
Linearity	400 µg/dL (61.2 mmol/L)

	Reagent blank	Standard	Specimen
<b>Reagent</b>	1.0 ml	1.0 ml	1.0 ml
<b>Standard</b>	_____	50 µl	_____
<b>Specimen</b>	_____	_____	50 µl

Mix and incubate for 10 min at 25 °C or 5 min at 37 °C. Measure the absorbance of the specimen (A<sub>specimen</sub>) and the absorbance of standard (A<sub>standard</sub>) against reagent blank.

**Calculation**

$$\text{Zinc Concentration } (\mu\text{g/dL}) = \frac{A_{\text{specimen}}}{A_{\text{standard}}} \times 200$$

### Quality control

Normal and abnormal control serum of known concentration should be analyzed with each run.

### Linearity

400 µg/dL.

### Expected values

#### Serum/Plasma

1- Male: 72.6 - 127 µg/dL (11.1 - 19.5 µmol/L)  
 2- Female: 70.6 - 114 µg/dL (10.7 - 17.5 µmol/L)  
 During pregnancy and menstruation, the concentration of zinc can be very low.

3- Children: 63.8 - 110 µg/dL (9.8 - 16.8 µmol/L)  
 4- Newborn: 49.5 - 99.7 µg/dL (7.6 - 15.3 µmol/L)

#### Urine

300 - 800 µg/dL

### Interfering Substances

Triglycerides (1000 mg/dL) does not affect the results.  
 Hemoglobin (>500 mg/dL) does not affect the results.  
 Bilirubin (>40 mg/dL) does not affect the results.  
 Other drugs and substances may interfere.

## Waste Disposal

This product is made to be used in professional laboratories. Please consult local regulations for a correct waste disposal.

**S56:** dispose of this material and its container at hazardous or special waste collection point.









**S57:** use appropriate container to avoid environmental contamination.

**S61:** avoid release in environment. Refer to special instructions/safety data sheets.

## References

1. Tietz, text book of clinical chemistry and molecular diagnostics.
2. Johnsen and R.Eliasson. Evaluation of a commercially available kit for the colorimetric determination of zinc. International Journal of Andrology, 1987, April 10 (2):435-440.

## SYMBOLS IN PRODUCT LABELLING

	For in-vitro diagnostic use
	Batch Code/Lot number
	Catalogue Number
	Consult instructions for use
	Temperature Limitation
	Use by/Expiration Date
	CAUTION. Consult instructions for use
	Manufactured by

 Spectrum For Diagnostic Industries - Free Zone  
Ismailia Free Zone , Block 5 .  
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