

# COPPER

Colorimetric Di-Br-PAESA method. Kit for measurement of copper concentration in serum and in plasma.





10500



3x30 mL (R1) 1x10 mL (R2) 1x5 mL (STD)



## PRINCIPLE OF THE METHOD

Under acid environment, cupric ions present in the sample reacts, with Di-Br-PAESA, to form a coloured complex . The intensity of the coloured complex is proportional to the copper concentration in the sample.

The method doesn't need de-proteinization, neither sample blank

## **TEST PREFORMANCE**

Precision	1		
Intra-assay (n=10)	Mean (μg/dL)	SD (μg/dL)	CV (%)
Sample 1	98,9	2,494	2,52
Sample 2	165.5	4 179	2 53

Inter-assay (n=30)	Mean (μg/dL)	SD (μg/dL)	CV (%)
Sample 1	101,93	2,856	2,80
Sample 2	169,25	4,940	2,92

Method comparison

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

y=5,1431x+1,0303 R = 0.9935n= 18

Sensitivity/limit of detection

The method is able to discriminate until 8 µg/dL.

The method is linear up to 500  $\mu$ g/dL.

#### SAMPLE

Serum, plasma with lithium heparin as anticoagulant.

#### Note

- Avoid use of hemolyzed sample.
- Copper 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

MAN	80 - 140	μg/dL	12.59 - 22.03	μmol/L
WOMAN	80 – 155	μg/dL	12.59 - 24.39	μmol/L
NEWBORN (BABIES)	12 – 67	μg/dL	1.89 - 10.54	μmol/L
CHILDREN (up to 10 years)	30 – 150	μg/dL	4.72 - 23.60	μmol/L

## **REAGENTS - INITIAL CONCENTRATION**

Reagent 1	Acetatum buffer 100 mmol/L pH 4,90	3x30 mL	REF: 1050001
Reagent 2	Reducing agents and preservatives.  3,5 Di-Br- PAESA (4-(3,5-dibromo-2-	1x10 mL	REF: 1050002
Standard	pyridylazo)-N-ethyl-N-sufopropylaniline) Standard ion Copper 200 μg/dL	1x5 mL	REF: 1050003

## **REAGENTS -STORAGE AND STABILITY**

Kit: Store at +2-8°C

Stable until the expiry date shown on the label.

Reagents are stable after opening until the expiry date shown on the Opened reagents:

bottles when are protected from direct light, tightly closed, and stored

at reported temperature

## **REAGENTS - PREPARATION**

Reagents are liquid ready to use.

## **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** 

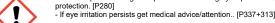
Spectrophotometer

Cuvettes with 1 cm lightpath.

#### SAFETY PRECAUTIONS

Reagent 1

- Causes serious eye irritation [H319]
- Wear protective gloves/protective clothing/eye protection/face protection. [P280]



Caution

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  $\lambda = 580(570 \text{ or } 590) \text{ nm}$ 

Lightpath 1 cm Temperature +37°C

Measurement Against reagent blank Reaction end point (increase)

Allow reagents to reach working temperature before using

Allow reagents to rea	BLANK	STANDARD	SAMPLE	
Reagent 1	900	900	900	μL
Distilled water	60	-	-	μL
Sample	-	-	60	μL
Standard	-	60	-	μL

Mix thoroughly and incubate for 5 minutes at +37°C.

Measure the absorbance of the Sample and the Standard against the blank (ABS1) 100 Reagent 2 100

Mix thoroughly and incubate for 5 minutes at +37°C.

Measure the absorbance of the Sample and the Standard against the blank (ABS2).

The colour is stable for at least 30 minutes if protected from direct light.

## CALCULATIONS

# Serum, plasma:

$$\label{eq:copper} \text{Copper}\left(\mu\text{g/dL}\right) = \frac{\text{ABS2 Sample - (ABS1Sample \times 0,906)}}{\text{ABS2 Standard - (ABS1Standard \times 0,906)}} * [Standard]$$

Conversion factor:

Copper (µg/dl) x 0.1574 = Copper (µmol/l)

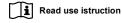
# QUALITY CONTROL

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

# **BIBLIOGRAPHY**

- 1. Pasquinelli F., Diagnostica e Tecniche di Laboratorio, (pag..: 1099-1102) Rossini
- 2. Akita Abe, Sumico yiamashita, Clin. Chem. 35(4): 197, 552-554 (1989).
- 3. Ciuti R., Galli A., Giorn. It. Chim. Clin. 12 (2): 91-100 (1987).
- 4. Ciuti R., Galli A., Giorn. It. Chim. Clin. 12 (2): 101-111 (1987).

# **SYMBOLS**





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



Store at +2-8°C



Batch number



Vial content