



## ZINC KIT

(Colorimetric Method)

(For veterinary invitro diagnostic use only)

### INTENDED USE

**QUADRAPED™** Zinc kit is used for the determination of Zinc in serum.

### SUMMARY

Zinc is important in human for growth and sexual development. It is present in various organs and is a component of many enzymes. Zinc found in serum is totally bound to protein with over 60% being bound to albumin. Increased levels are found in patients associated with gastrointestinal disorders accompanied with nausea, vomiting, high fever and a metallic taste. Decreased levels are found in cirrhosis, lung carcinomas, sickle cell anemia, acute myocardial infarction, renal failure, corticosteroid and oral contraceptive therapy.

### PRINCIPLE

Zinc in an alkaline medium reacts with Nitro - PAPS to form a purple coloured complex. Intensity of the complex formed is directly proportional to the amount of Zinc present in the sample.



### EXPECTED VALUES

Species	Zinc (µg/dl)
Dog	32-129
Cat	50-110
Cow	52-157
Buffalo	65-111
Horse	41-79
Pig	65-130
Sheep	72-134
Goat	70-130
Rabbit	70-150

It is recommended that each laboratory establish its own range as reference ranges may vary between laboratories.

### PRESENTATION

REF	1126240025
Pack Size	25 ml
L1 Buffer Reagent	20 ml
L2 Colour Reagent	5 ml
S Zinc Standard (200 µg/dl)	2 ml

### COMPOSITION

Borate Buffer 370 mM; pH 8.2; 1.0 mM; NITRO-PAPS 0.08 mM; Masking agent, Surfactant and Preservatives.

### STORAGE / STABILITY

Contents are stable at 2-8°C till the expiry mentioned on the labels.

### REAGENT PREPARATION

Reagents are ready to use.

**Working reagent:** Pour the contents of 1 bottle of L2 (Colour Reagent) into 1 bottle of L1 (Buffer Reagent). This working reagent

is stable for at least 2 weeks when stored at 2-8°C.

Alternatively for flexibility as much of working reagent may be made as and when desired by mixing together 4 parts of L1 (Buffer Reagent) and 1 part of L2 (Colour Reagent). Alternatively 0.8 ml of L1 and 0.2 ml of L2 may also be used instead of 1 ml of the working reagent directly during the assay.

### SAMPLE MATERIAL

Serum (Free from hemolysis). Zinc is reported to be stable in serum for 7 days at 2-8°C.

### SAMPLE WASTE AND DISPOSAL

Do not reuse the reagent containers, bottles, caps or plugs due to the risks of contamination and the potential to compromise reagent performance.

Appropriate biosafety practices should be used for materials that contain or are suspected of containing infectious agents.

Handle specimens, solid and liquid waste and test components in accordance with local regulations and NCCLS guidelines M29, or other published biohazard safety guidelines.

### MATERIALS REQUIRED BUT NOT PROVIDED

Photometer analyzer with standard thermostatic cuvette holder, micropipette and appropriate laboratory equipment.

### PROCEDURE

Wavelength / filter : 570 nm (Hg 578 nm) / Yellow  
Temperature : R.T.  
Light path : 1 cm

Pipette into clean dry test tubes labelled as Blank (B), Standard (S) and Test (T):

Addition Sequence	B (ml)	S (ml)	T (ml)
Working Reagent	1.0	1.0	1.0
Distilled Water	0.05	-	-
Zinc Standard (S)	-	0.05	-
Sample	-	-	0.05

Mix well and incubate at R.T. (25°C) for 5 mins. Measure the absorbance of the Standard (Abs. S), and Test Sample (Abs. T) against the Blank, within 20 mins.

### CALCULATIONS

$$\text{Zinc in } \mu\text{g/dl} = \frac{\text{Abs.T}}{\text{Abs.S}} \times 200$$

### QUALITY CONTROL

The following process is recommended for QC during the assay of Zinc. \*Define and establish acceptable range for your laboratory.

- Two levels of control (Normal and Abnormal) are to be run on a daily basis.
- If QC results fall outside acceptance criteria, recalibration may be necessary.
- Review QC results and run acceptance criteria following a change of reagent lot.

### SPECIFIC PERFORMANCE CHARACTERISTICS

LOD : 5.0 µg/dl

LOQ : 10.0 µg/dl

Lower Limit : 5.0 µg/dl

Higher Limit : 700.0 µg/dl

If values exceed this limit, dilute the sample with distilled water and repeat the assay. Calculate the value using the proper dilution factor.

### Interferences:

Sample when spiked with interferent such as upto 22.67 mg/dl Bilirubin, 998.11 mg/dl intralipid and 2.02 mg/dl haemoglobin does not affect the ability of the kit to determine the Zinc concentration.

### Precision:

#### Within run

Within run	n	Mean	SD	% CV
Sample 1	10	177.0	1.41	0.80
Sample 2	10	262.1	1.82	0.70
Sample 3	10	70.2	0.09	0.13

#### Between run

Between run	n	Mean	SD	% CV
Sample 1	10	177.0	1.31	0.74
Sample 2	10	261.9	1.59	0.61
Sample 3	10	70.2	0.09	0.12

### Method comparison:

Comparative studies were done to compare our reagent with another commercial Zinc Assay. No significant differences were observed. Details of the comparative studies are available on request.

### NOTE

In vitro diagnostic reagent for laboratory and professional use only Not for medicinal use. The reagent contain sodium azide 0.1% as preservative. Avoid contact with skin and mucosa. On disposal flush with large quantities of water. Only clean and dry glassware must be used. Chelating agents such as EDTA, Oxalate and Citrate, present even in traces, prevent the formation of the colour complex, hence necessary care should be taken during the assay. Highly lipemic samples could interfere and should be cleared by centrifugation / filtration before use. Do not use turbid, deteriorated or leaking reagents.

### REFERENCES

- Akita Abe, Yamashita, S., (1989) Clin. Chem. 35/4: 552 - 554.
- Tetsuo Makino, (1991) Clin. Chem. Acta. 197:209-220.
- Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology, Kenneth S. Latimer, ISBN Jane Wardrop, 6th Edition – 2010.
- Clinical Biochemistry of Domestic Animals, Sixth Edition, 2008 by Kaneko J.J., Harvey J.W. & Bruss M.L.
- Data on file: Coral Clinical Systems.

### System Parameters

Reaction	: End Point	Interval	: —
Wavelength	: 578 nm	Sample Vol.	: 0.05 ml
Zero Setting	: Reagent Blank	Reagent Vol.	: 1.00 ml
Incub. Temp.	: R. T.	Standard	: 200 µg/dl
Incub. Time	: 5 min.	Factor	: —
Delay Time	: —	React. Slope	: Increasing
Read Time	: —	Linearity	: 700 µg/dl
No. of read.	: —	Units	: µg/dl

### SYMBOL KEYS

Store at 2-8°C	Manufacturer	<b>IVD</b> In vitro Diagnostic Medical Device	<b>L1</b> Buffer Reagent	<b>Colorimetric</b> Colorimetric Method
Use by (Last day of stated month)	Consult Instructions for use	<b>LOT</b> Batch Number	<b>L2</b> Colour Reagent	<b>S</b> Zinc Standard (200 µg/dl)
Date of Manufacture	<b>REF</b> Catalogue Number			This way up



Manufactured by:

## Coral Clinical Systems

A Division of Tulip Diagnostics (P) Ltd.

BUILDING E, PLOT NO. M-46/47, PHASE III B, VERNA INDUSTRIAL ESTATE, VERNA, GOA-403 722, INDIA.

REGD. OFFICE : GITANJALI, TULIP BLOCK, DR. ANTONIO DO REGO BAGH,

ALTO SANTACRUZ, BAMBOLIM COMPLEX P.O., GOA-403 202, INDIA.

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