PHOSPHORUS
(UV Method)

SAFETY PRECAUTIONS AND WARNINGS:

This reagent is for ***In vitro*** diagnostic use only.

INTENDED USE:

This reagent kit is intended for ***"in vitro"*** quantitative determination of PHOSPHORUS concentration in serum and urine. UV Method.

CLINICAL SIGNIFICANCE:

Phosphorus in blood exists in two forms as inorganic phosphate and organophosphateesters mainly 2,3-diphosphoglyceric acid, ATP etc. The inorganic phosphate is the fraction of clinical interest. Serum inorganic phosphorus levels are closely tied to bone metabolism, renal function, vitamin D levels and parathyroid hormone status.

PRINCIPLE:

norganic phosphate reacts with molybdate to form a heteropolyacid complex. The sulfuric acid eliminates the need to prepare a protein free filtrate. The absorbance at 340 nm is directlyproportional to the inorganic phosphorus level in the sample.

Phosphate + Ammonium molybdate $\xrightarrow{\text{Sulfuric Acid}}$ Heteropolyacid-phosphomolybdic complex

REAGENT COMPOSITION:

Reagent 1: Phosphorus reagent
Phosphorus standard: 5 mg/dl

MATERIALS REQUIRED BUT NOT PROVIDED:

- Clean & Dry Glassware.
- Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

SAMPLES:

Serum free of haemolysis.

Urine, diluted with distilled water (1:10).

STABILITY OF REAGENT:

When Stored tightly closed at 2 to 8ºC temperature protected from light and contaminations prevented during their use; reagents are stable up to the expiry date stated on the label.

WORKING REAGENT:

The Reagent is ready for use.

GENERAL SYSTEM PARAMETERS:

Reaction type	End Point
Wave length	340 nm
Light Path	1 Cm
Reaction Temperature	37°C
Blank / Zero Setting	Reagent
Reagent Volume	1ml
Sample Volume	10 µl
Incubation Time	5 Minutes
Standard Concentration	5.0 mg/dl
Low Normal	3.0 mg/dl
High Normal	4.5 mg/dl
Linearity	10.0 mg/dl

ASSAY PROCEDURE:

	Blank	Standard	Sample
Reagent	**1ml**	**1ml**	**1ml**
Standard		**10 µl**	
Sample			**10 µl**

Mix and read the optical density (A) after a 5-minute incubation at 37°C.

CALCULATION:

$$\text{Phosphorus Conc. (Mg/dl)} = \frac{\text{OD of Sample}}{\text{OD of Standard}} \text{ X Conc. of Standard}$$

LINEARITY:

Reagent is Linear up to 10 mg/dl.
Dilute the sample appropriately and re-assay if Phosphorus concentration exceeds 10 mg/dl. Multiply result with dilution factor.

REFERENCE NORMAL VALUE:

Serum: Children: 4.0-5.5mg/dl
Adults : 3.0 - 4.5 mg/dl
Urine : 0.40-1.3gm/24h
It is recommended that each laboratory establish it's own expected range.

QUALITY CONTROL:

For accuracy it is necessary to run known controls with every assay.

LIMITATION & PRECAUTIONS:

1. Storage conditions as mentioned on the kit to be adhered.
2. Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
3. Before the assay bring all the reagents to room temperature.
4. Avoid contamination of the reagent during assay process.
5. Use clean glassware free from dust or debris.

BIBLIOGRAPHY:

Daly J., Erthingshausen G.: Clin. Chem. 18, 263 (1972)

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