PHOSPHORUS

(Phosphomolybdate UV Method)
Liquid Reagent

INTENDED USE:
This reagent kit is used for *in-vitro* quantitative determination of Phosphorus in human serum and plasma.

TEST PRINCIPLE:
Direct Phosphomolybdate reaction without deproteinization. Phosphate ions form with molybdate ions in acid solution proportional amounts of unreduced phospomolybdate complex. The concentration of the complex formed is determined by measuring its absorbance.

KIT CONTENTS:
Reagent 1: Phosphorus Reagent
Reagent 2: Magnesium Standard (5 mg/dl)
Product Insert : 01 No.

PREPARATION OF THE WORKING REAGENT:
All the reagents are ready to use.

STORAGE AND STABILITY: 

All the reagent should be stored at 2 – 8°C and are stable till the expiry date mentioned in the labels. Protect from light, avoid contamination.

SPECIMEN COLLECTION AND STORAGE:
Serum, heparinized plasma and 24 hours urine is recommended.
Serum and plasma can be stored upto 7 days at 2 – 8°C.
For longer storage samples should be frozen at -20°C.
24 hours urine samples can be stored upto 7 days at 2 – 8°C.
Nevertheless, it is recommended to perform the assay with freshly collected samples.

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. After use store the kit contents immediately as 2-8°C.
5. Avoid contamination of the reagents during assay process.
6. Use clean plastic ware free from duct or debris.
7. Contaminated glassware is the greatest source of error.

TEST PRECEDURE (Automated):
Refer to specific instrument application instructions.

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

Wavelength : 340 nm
Temperature : 37°C
Cuvette : 1 cm

Pipette into Test Tube	Blank	Standard	Test
Phosphorus Reagent-1	1.0 ml	1.0 ml	1.0 ml
Standard	-	10 µl	-
Sample	-	-	10 µl

Mix well and incubate for 5 minutes at 37°C.

Read the absorbance of Standard (A_S), and Tests (A_T) against Blank (A_B) at 505 nm.

CALCULATIONS:
Phosphorus in mg/dl

$$\frac{\text{Abs of } A_T - A_B}{\text{Abs of } A_S - A_B} \times 5 \text{ (Conc. of Standard)}$$

NORMAL VALUES*:

Age 2 to 10 days	4.5 – 9.0 mg/dl
10 days to 24 Months	4.5 – 6.7 mg/dl
24 Months to 2 Years	4.5 – 5.5 mg/dl
12 to 20 Years	2.7 – 4.5 mg/dl
Above 60 Years Male	2.3 – 3.7 mg/dl
Above 60 Years Female	2.8 – 4.1 mg/dl
Urine	0.4 – 1.3 mg/24 hours

*It is recommended that each laboratory should establish its own range representing its patient population.

PERFORMANCE:
Linearity: 15 mg/dl

CLINICAL SIGNIFICANCE:
Phosphorus is clinically significant for building bones and teeth, enabling energy metabolism via ATP, creating DNA and RNA, and maintaining cell membranes, nerve, and muscle function. Imbalances, known as hypophosphatemia (low) and_ hypophosphatemia (high), can cause bone pain, muscle weakness, confusion, and increase risks of heart damage, while proper levels are maintained by a complex interplay of the kidneys, bones, and intestines.

AUTOMATED APPLICATIONS:
Phosphorus reagent can be used in several automated analyzers. Application sheets for use on specific semiautomatic/automatic analyzers are available on request.

Input parameters for semiautomatic/automatic analyzers are given below:

INPUT PARAMETERS	VALUES
Type of reaction	End Point
Wavelength	340 nm
Incubation time	5 minutes
Standard Concentration	5 mg/dl
Units	mg/dl
Upper Normal Value	9.0 mg/dl
Lower Normal Value	2.3 mg/dl
Linearity	15 mg/dl
Reagent volume	1.0 ml
Sample/Standard volume	10 µl
Reaction Slope	Increasing

QUALITY CONTROL:
For accuracy, it is necessary to run known serum controls with each assay.

REFERENCES:

1. Dalay J.A., Ertinghausen G.: Clin. Chem. 18, 263-265 (1972).
2. Heller H.: Klinisch-Chemische Labordiagnostik fur die Praxis, 2nd Ed., Georg Thieme Verlag, Stuttgart, 218 (1991).
3. M.A. Munoz et all: Clinical Chemistry 29 (2), 372-374 (1983).
4. Burtis C.A., Ashwood R.R., ed. Tietz Textbook of Clinical Chemistry, 2nd ed. Philadelphia, P.A: WB Saunders, 1909, (1994).
5. Haplan L.A., Pesce A.J., ed. Chemistry Theory, Analysis, and Correlation, 3rd ed. St Louis, MO: Mosby, 552 (1996).
6. Tietz N.W., ed. Clinical Guide to Laboratory Tests, 3rd ed. Philadelphia, PA: WB Saunders, 486, (1995).
7. Burtis C>A, Ashwood E.R., ed. Rietz Textbook of Clinical Chemistry, 2nd ed. Philadelphia, PA: WB Saunders, (1994).

Tietz N.W.: Textbook of Clinical Chemistry, 2nd ed., W.B. Saunders Company, Philadelphai, 2202 (1994).

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