GENESIS

Instructions For Use

PHOSPHORUS (UV – END POINT)

Cat no.	size
1302 101	2*25
1302 102	4*25

INTENDED USE
Phosphorus reagent is intended for the in-vitro quantitative, diagnostic determination of inorganic phosphorus in human srrum and plasma.

DIAGNOSTIC CHARACTERISTICS
Phosphorus is mainly combined with calcium and is found in the bones. Approximately 15% exist as inorganic phosphorus or phosphate esters. It is involved in the carbohydrate metabolism and is a component of many other substances. Increased levels are found in hypoparathyroidism, renal failure, bone metastasis and liver diseases. Decreased levels are found in hyperparathyroidism, rickets and Vitamin D deficiency.

PRINCIPLE OF THE METHOD
Phosphate ions in an acidic medium react with ammonium molybdate to form a phosphomolybdate complex. This complex has an absorbance in the ultraviolet range and is measured at 340 nm. Intensity of the complex formed is directly proportional to the amount of inorganic phosphorus present in the sample.
Phosphorus + Ammonium Molybdate ⟶ Phosphomolybdate Complex

COMPOSITION

Reagent (R)	
Ammonium molybdate	5 mmol/L
Sulphoric acid	0.3 N
Standard (S)	5.0 mg/dL

STORAGE
Store at 2-8ºC. Reagent and Standard are stable until the expiry date shown on the label when stored tightly closed. Avoid contaminations during their use.

REAGENT PREPARATION
Reagent ready to use.

ADDITIONAL EQUIPMENT
-Thermostatic water bath at 37ºC
-Analyzer, spectrophotometer or photometer able to read at 340 nm.

SPECIMEN
1. Serum or heparinized, free from hemolysis.
2. Serum, plasma should be removed from the red cell clot as soon as possible.
3. Serum inorganic phosphorus is stable for 1 week at 2 - 8 °C, for 3 weeks at - 20 °C and for 24 hrs at 15-25 °C
4. 24/ hr. Urine: Add 10 ml of 6N HCl to the urine container during the 24 hr collection. Dilute urine (1+9) with double distilled water before testing and multiply result by 10.
5. Urine inorganic phosphorus is stable for 6 months at 2 - 8 °C when acidified.

PRECAUTIONS AND WARNINGS
Do not ingest or inhalate. 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.

Symbols in Product Labeling

EC REP	Authorized Representative		Expiration date
IVD	For in-vitro diagnostic use		CAUTION, consult instructions for use
REF	Catalogue number		
LOT	Lot number		Manufactured by
	Consult instructions for use		Temperature Limit

PROCEDURE
1. Pipette into labeled test tubes:

	Blank	Standard	Sample
Phosphorus reagent (R)	1.0 mL	1.0 mL	1.0 mL
STANDARD(S)	-	10 µL	-
Sample	-	-	10 µL

2. Mix thoroughly and incubate the tubes for **10 minutes** at room temperature or **5 minutes** at 37ºC.
3. Measure the absorbance (A) of the Standard and Sample at 340 nm against the blank.

CALCULATIONS
The concentration in the sample is calculated using the following general formula:

$$\frac{A\ Sample}{A\ Standard} \times 5.0 = mg/dL\ phosphorus$$

$$\frac{A\ Sample}{A\ Standard} \times 0.323 = mmol/L\ phosphorus$$

REFERENCE VALUES

Serum		
Adults	2.5 – 4.5	mg/dL
Children< 12 years	4.5 – 5.5	mg/dL
Children< 1 year	4.5 – 6.7	mg/dL
Newborns	5.0 – 9.6	mg/dL
Urine:	0.3 – 1.0	g/24 hr

QUALITY CONTROL
It is recommended to use the Control Serum level I and II to verify the performance of the measurement procedure.
Each laboratory should establish its own internal Quality Control.

METROLOGICAL CHARACTERISTICS
− Detection limit: 1.0 mg/dL.
– Linearity limit: 20.0 mg/dL.
For higher values dilute sample **1/2** with physiological saline and repeat measurement.

− Repeatability (within run):

Mean Concentration	**Cv**	**n**
4.64 mg/dL	0.63 %	10
7.19 mg/dL	0.76 %	10

− Reproducibility (run to run):

Mean Concentration	**Cv**	**n**
4.64 mg/dL	0.07 %	10
7.19 mg/dL	0.14 %	10

− INTERFERENCES
1. A number of drugs and substances affect phosphorus results, see Young ,et al.
2. Citrated plasma produce low false values.
3. Hemolyzed sample may give false high values

BIBLIOGRAPHY
1. Daly, J. A., Erthingshausen G., Clin. Chem., 18, (1972), 263.
2. Young, DS., Effects of Drugs on Clinical Laboratory Tests, fifth edition 2000, AACC Press, Washington, D.C

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