

# BioMed-Phosphorous



REF: PH123100 (2x50 ml)

## INTENDED FOR USE

For the quantitative of inorganic phosphorus in serum and urine

## PRINCIPLE :

Inorganic phosphorus react with ammonium molybdate in an acid medium to form a phosphomolybdate complex which absorbs light at 600-675 nm .

The absorbance at this wavelength is directly proportional to the amount of inorganic phosphorus present in the sample .

Inorganic phosphorus + H<sub>2</sub>SO<sub>4</sub> + Ammonium molybdate → Phosphomolybdate complex

## SPECIMEN COLLECTION :

Non hemolyzed fresh serum .

Urine 24/h diluted 1:10 with distilled water and acidified with 2/3 drops of HCl 23% .

**Note :** Plasma ( only with heparin ) should not be used, since anticoagulants may produce falsely low values .

serum should be separated from the clot as soon as possible.

Do not use hemolyzed samples .

Inorganic phosphorus in serum is reported stable for 7 days at + 2-8°C and approximately 3 weeks when stored in the refrigerator at - 20°C and protected against evaporation .

Shake and bring the samples at room temperature before using .

## REAGENTS COMPOSITION:

| Reagent (1) | Phosphorus standard                     | 5 mg/dL<br>( 1.615 mmol/L |
|-------------|---|---------------------------|
| Reagent (2) | Sodium Chloride<br>Detergent            | 1.2 %<br>< 1%             |
| Reagent (3) | Ammonium molybdate<br>Sulfuric Acid 96% | < 1%<br>< 2%              |

## PACKAGE : Collection & storage .

Store at + 2-8°C . Protect from light exposure .

Stable till the expiration date reported upon the package .

After the unsealing and the taking of the reagent , it is advised to close up the bottle immediately in order to avoid evaporation , direct exposure to light and bacterial contamination .

## PRECAUTIONS & WARNING:

Do not pipette by mouth .

The preparation , according to current regulation , is classified as not dangerous .

The total concentration of non active components ( preservatives, detergents, stabilizers) is below the minimum required for citation .

Anyway handle with care , avoid ingestion , avoid contact with eyes , skin and mucous membranes

The samples must be handled as potentially infected from HIV or Hepatitis . .

## REAGENT PREPARATION & STABILITY :

Ready to use liquid reagent . The reagent must be at room temperature ( +15-25°C ) before using .

The reagent is limpid and colourless . Stable until the date reported on the label Reagent's yellow color.

## REQUIRED MATERIALS NOT PROVIDED :

General Laboratory Equipment and instrumentations .

## PROCEDURE :

|                |                       |
|----------------|-----------------------|
| Wavelength     | 600-675 nm            |
| Optical path : | 1 cm light path       |
| Temperature :  | 20-25°C               |
| Reading :      | Against blank reagent |
| Assay type :   | End Point             |

## Pipetting in tubes :

|                 | BLANK  | STANDARD | SAMPLE |
|-----------------|--------|----------|--------|
| Reagent (R2)    | 500 µL | 500 µL   | 500 µL |
| Reagent (R3)    | 500 µL | 500 µL   | 500 µL |
| Standard (R1)   | -----  | 50 µL    |        |
| Sample          | -----  | -----    | 50 µL  |
| Distilled Water | 50 µL  | -----    |        |

Mix, incubate for 15 min room temperature ( + 15-25°C ) and read sample and standard extinction , against blank reagent .

Color is stable at least 60 min at room temperature .

Volumes can be proportionally modified .

This methodology describes the manual procedure to use the kit .

For automated procedure , ask for specific application .

## CALCULATION:

$$\text{serum inorganic phosphorus mg/dl} = \frac{(\text{A}) \text{ Sample}}{(\text{A}) \text{ Standard}} \times 5$$

Urine 24/h :

$$\text{phosphorus mg/24h} = \frac{(\text{A}) \text{ Sample}}{(\text{A}) \text{ Standard}} \times 5 \times 10 (\text{ Dil. Fact.}) \times \text{Urine Vol. 24/h (dl)}$$

Unit conversion:

$$\text{mg/dl} \times 0.0323 = \text{mmol/l}$$

## EXPECTED VALUES :

### SERUM :

|                            |               |                  |
|----------------------------|---------------|------------------|
| Children up to 12years old | 4.5-6.7 mg/dl | 1.45-2.16 mmol/l |
| Adults                     | 2.7-4.5 mg/dl | 0.87-1.45 mmol/l |

### URINE :

Adults 400-1300 mg/24h 12.9-42.0 mmol/24h  
The above mentioned values are to be considered as a reference .  
It is strongly recommended that each laboratory establish its own normal

## WASTE DISPOSAL :

The disposal of the product must be in accordance with local regulation concerning waste disposal .

## QUALITY CONTROL :

It is recommended to execute the quality control at every kit utilization to verify that values are within the reference range indicated by the methodology.

## PERFORMANCE :

|                                |                      |
|--------------------------------|----------------------|
| MEASURE INTERVAL / LINEARITY : | 0.39-14 mg/dl        |
| DETECTION LIMIT :              | 0.39 mg/dl           |
| SENSITIVITY :                  | 0.3 mg/dl = 0.00699A |

### INTRA-ASSAY PRECISION : n=20

|              |                 |             |
|--------------|-----------------|-------------|
| LOW LEVEL    | M = 3.49 mg/dl  | C.V = 2.66% |
| MEDIUM LEVEL | M = 5.72 mg/dl  | C.V = 1.39% |
| HIGH LEVEL   | M = 17.09 mg/dl | C.V = 2.24% |

### INTER-ASSAY PRECISION : n=20

|              |                 |             |
|--------------|-----------------|-------------|
| LOW LEVEL    | M = 3.51 mg/dl  | C.V = 0.57% |
| MEDIUM LEVEL | M = 5.85 mg/dl  | C.V = 2.24% |
| HIGH LEVEL   | M = 17.70 mg/dl | C.V = 3.50% |

|                 |                   |      |
|-----------------|-------------------|------|
| INTER ANALYZED  |                   |      |
| CORRELATION     | r = 0.999         | n=60 |
| LIN. REGRESSION | y = 1.02 × - 0.06 | n=60 |

### INTERFERENCE:

|                                      |           |                 |
|--------------------------------------|-----------|-----------------|
| Interferences are negligible up to : |           |                 |
| Glucose                              | 600 mg/dl | Albumin 20 g/dl |
| Triglycerides                        | 500 mg/dl |                 |

## METHOD LIMITATIONS:

For concentration higher than 14 mg/dl repeat the measure on a sample diluted 1:2 with saline solution multiply the results × 2 .

Do not use hemolyzed or icteric specimens .

Important interference with Bilirubin from 12 mg/dl

Important interference with Hemoglobin from 0.15 g/dl










Presence of Hb and/or Bilirubin in the above mentioned concentrations , causes a 10% increase in inorganic phosphorus values

For through evaluation of the interfering substances ,consult : Young , D. S ,et al , Clin , Chem , 21:1 D ( 1975 ) .

## REFERENCES :

Erthinghasausen G , Clin , Chem , 18, 263 ( 1972 ) .

Vassault , A et al , Ann , Bio , Clin , 44, 686 , ( 1986 ) .

|   |   |
|---|---|
|  | Consult Instructions for Use                        |
|  | Caution, Consult accompanying                       |
|  | In Vitro Diagnostic Medical                         |
|  | Temperature Limitation                              |
|  | Manufacturer  |
|  | Authorized Representative in the European Community |
|  | Catalogue Number                                    |
|  | Batch Code  |
|  | Use by  |

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