

## Phosphate FS\*

Diagnostic reagent for quantitative in vitro determination of phosphorus in serum or plasma on DiaSys respons<sup>®</sup>910

### Order Information

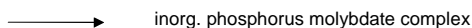
Cat. No. 1 5211 99 10 920  
4 twin containers for 200 tests each

### Method

Photometric UV test with endpoint determination

### Principle

Ammonium molybdate + Sulphuric acid + Phosphate



Absorption maximum of the complex is at 340 nm.

### Reagents

#### Components and Concentrations

<b>R1:</b>	Glycine buffer	50 mmol/L
	Sulphuric acid	
	Detergent	
<b>R2:</b>	Glycine buffer	50 mmol/L
	Ammonium molybdate	1.75 mmol/L

#### Storage Instructions and Reagent Stability

The reagents are stable up to the end of the indicated month of expiry, if stored at 2 - 8 °C and contamination is avoided. Do not freeze the reagents!

#### Warnings and Precautions

1. Reagent 1: S24/25: Avoid contact with skin and eyes.
2. In very rare cases, samples of patients with gammopathy might give falsified results.
3. Please refer to the safety data sheets and take the necessary precautions for the use of laboratory reagents. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings.

#### Waste Management

Please refer to local legal requirements.

#### Reagent Preparation

The reagents are ready to use. The bottles are placed directly into the reagent rotor.

### Specimen

Serum or heparin plasma

Stability [1]:

1 day	at	20 - 25 °C
4 days	at	4 - 8 °C
1 year	at	-20 °C

Discard contaminated specimens. Freeze only once.

### Calibrators and Controls

For calibration, DiaSys TruCal U calibrator is recommended. The assigned values of the calibrator have been made traceable to a primary phosphate standard (traceable to NIST-SRM 723 reference material). For internal quality control DiaSys TruLab N and P controls should be assayed. Each laboratory should establish corrective action in case of deviations in control recovery.

	Cat. No.	Kit size
TruCal U	5 9100 99 10 063	20 x 3 mL
	5 9100 99 10 064	6 x 3 mL
TruLab N	5 9000 99 10 062	20 x 5 mL
	5 9000 99 10 061	6 x 5 mL
TruLab P	5 9050 99 10 062	20 x 5 mL
	5 9050 99 10 061	6 x 5 mL

### Performance Characteristics

All concentrations given in mg/dL refer to phosphorus.

Measuring range up to 30 mg/dL phosphorus (in case of higher concentrations re-measure samples after manual dilution or use rerun function).	
Limit of detection**	0.2 mg/dL phosphorus
On-board stability	3 weeks
Calibration stability	7 days

Interfering substance	Interferences < 10%	Phosphorus [mg/dL]
Ascorbate	up to 30 mg/dL	2.02
Hemoglobin	up to 450 mg/dL	2.69
Bilirubin, conjugated	up to 900 mg/dL	6.14
	up to 60 mg/dL	3.12
Bilirubin, unconjugated	up to 70 mg/dL	6.94
	up to 80 mg/dL	3.11
Lipemia (triglycerides)	up to 80 mg/dL	7.04
	up to 900 mg/dL	3.32
	up to 1000 mg/dL	7.34

For further information on interfering substances refer to Young DS [2].

Precision			
Within run (n=20)	Sample 1	Sample 2	Sample 3
Mean [mg/dL]	2.00	3.55	8.79
Coefficient of variation [%]	2.32	2.08	1.39
Between run (n=20)	Sample 1	Sample 2	Sample 3
Mean [mg/dL]	2.23	3.56	8.02
Coefficient of variation [%]	1.50	1.74	2.44

Method comparison (n=131)	
Test x	DiaSys Phosphate FS (Hitachi 911)
Test y	DiaSys Phosphate FS (respons <sup>®</sup> 910)
Slope	1.008
Intercept	-0.058 mg/dL
Coefficient of correlation	0.999

\*\* according to NCCLS document EP17-A, vol. 24, no. 34

### Conversion factor

Phosphate [mmol/L] = Phosphorus [mmol/L]  
Phosphorus [mg/dL] x 0.3229 = Phosphorus [mmol/L]  
Phosphorus [mg/dL] x 3.06619 = Phosphate [mg/dL]

### Reference Range [3]

	Phosphorus [mg/dL]	[mmol/L]
Adults	2.6 - 4.5	0.84 - 1.45
Children/Adolescents:		
1 - 30 day(s)	3.9 - 7.7	1.25 - 2.50
1 - 12 month(s)	3.5 - 6.6	1.15 - 2.15
1 - 3 year(s)	3.1 - 6.0	1.00 - 1.95
4 - 6 years	3.3 - 5.6	1.05 - 1.80
7 - 9 years	3.0 - 5.4	0.95 - 1.75
10 - 12 years	3.2 - 5.7	1.05 - 1.85
13 - 15 years	2.9 - 5.1	0.95 - 1.65
16 - 18 years	2.7 - 4.9	0.85 - 1.60

Each laboratory should check if the reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

### Literature

1. Guder WG, Zawta B et al. The Quality of Diagnostic Samples. 1<sup>st</sup> ed. Darmstadt: GIT Verlag; 2001; p. 40-1.
2. Young DS. Effects of Drugs on Clinical Laboratory Tests. 5th. ed. Volume 1 and 2. Washington, DC: The American Association for Clinical Chemistry Press, 2000.
3. Thomas L. Clinical Laboratory Diagnostics. 1<sup>st</sup> ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998. p. 241-7.
4. Endres DB, Rude RK. Mineral and bone metabolism. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3<sup>rd</sup> ed. Philadelphia: W.B Saunders Company; 1999. p. 1395-1457.
5. Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3<sup>rd</sup> ed. Philadelphia: W.B Saunders Company; 1999. p. 1829.

### Manufacturer



DiaSys Diagnostic Systems GmbH  
Alte Strasse 9 65558 Holzheim Germany

## Phosphate FS

### Application for serum and plasma samples

This application was set up and evaluated by DiaSys. It is based on the standard equipment at that time and does not apply to any equipment modifications undertaken by unqualified personnel

Identification	
This method is usable for analysis:	Yes
Name:	PO3
Shortcut:	
Reagent barcode reference:	049
Host reference:	

Technic	
Type:	Endpoint
First reagent:[ $\mu$ L]	180
Blanc correction	Yes
Second reagent:[ $\mu$ L]	45
Blanc correction	Yes
Main wavelength:[nm]	340
Secondary wavelength:[nm]	660
Polychromatic factor:	1.000
1 st reading time [min:sec]	(04:24)
Last reading time [min:sec]	10:00
Reaction way:	Increasing
Linear Kinetics	
Substrate depletion: absorbance limit	
Linearity: Maximum deviation [%]	
Fixed Time Kinetics	
Substrate depletion: absorbance limit	
Endpoint	
Stability: largest remaining slope	-
Prozone Limit [%]	-

Sample	
Diluent	NaCl
Concentration technical limits-Lower	0.2
Concentration technical limits-Upper	30
SERUM	
Normal volume [ $\mu$ L]	3
Normal dilution (factor)	1
Below normal volume [ $\mu$ L]	6
Below normal dilution (factor)	1
Above normal volume [ $\mu$ L]	3
Above normal dilution (factor)	6
URIN	
Normal volume [ $\mu$ L]	3
Normal dilution (factor)	1
Below normal volume [ $\mu$ L]	6
Below normal dilution (factor)	1
Above normal volume [ $\mu$ L]	3
Above normal dilution (factor)	6
PLASMA	
Normal volume [ $\mu$ L]	3
Normal dilution (factor)	1
Below normal volume [ $\mu$ L]	6
Below normal dilution (factor)	1
Above normal volume [ $\mu$ L]	3
Above normal dilution (factor)	6
CSF	
Normal volume [ $\mu$ L]	3
Normal dilution (factor)	1
Below normal volume [ $\mu$ L]	6
Below normal dilution (factor)	1
Above normal volume [ $\mu$ L]	3
Above normal dilution (factor)	6

Results	
Decimals	2
Units	mg/dL
Correlation factor-Offset	0.000
Correlation factor-Slope	1.000

Range	
Genre	All
Age	
SERUM	$\geq 2.6 \leq 4.5$
URINE	
PLASMA	$\geq 2.6 \leq 4.5$
CSF	
Genre	
Age	
SERUM	
URINE	
PLASMA	
CSF	

Contaminants	
Contaminant 1	
Wash with	
Cycle	
Volume [ $\mu$ L]	
Contaminant 2	
Wash with	
Cycle	
Volume [ $\mu$ L]	

Calibrators details	
Calibrator list	Concentration
Cal. 1	0
Cal. 2	*
Cal. 3	*
Cal. 4	*
Cal. 5	*
Cal. 6	*
Max delta abs.	
Cal. 1	0.015
Cal. 2	0.015
Cal. 3	
Cal. 4	
Cal. 5	
Cal. 6	
Drift limit [%]	0.8
Calculations	
Model	X degree
Degree	1

\* Enter calibrator value