Supelco®

1.14842.0001

Spectroquant®

Phosphate Test

P

for the determination of orthophosphate

1. Method

In sulfuric solution orthophosphate ions react with ammonium vanadate and ammonium heptamolybdate to form orange-yellow molybdovanado-phosphoric acid that is determined photometrically ("VM" method).
The method is analogous to APHA 4500-P C.

2. Measuring range and number of determinations

Cell	Measuring range			Number of determinations
mm	mg/l PO_4-P	mg/l PO_4^{3-}	mg/l P_2O_5	
20	**0.5** - 15.0	**1.5** - 46.0	**1.1** - 34.4	400
10	1.0 - **30.0**	3.1 - **92.0**	2.3 - **68.7**	

For programming data for selected photometers / spectrophotometers see www.service-test-kits.com.

3. Applications

This test measures only orthophosphate.

Sample material:
Groundwater and surface water, seawater
Wastewater
Industrial water
Boiler water
Nutrient solutions for fertilization
Soils after appropriate sample pretreatment

4. Influence of foreign substances

This was checked individually in solutions containing 15 and 0 mg/l PO_4-P. The determination is not yet interfered with up to the concentrations of foreign substances given in the table. Cumulative effects were not checked; such effects can, however, not be excluded.

Concentrations of foreign substances in mg/l or %							
AsO_4^{3-}	50	Cu^{2+}	1000	Ni^{2+}	100	NaCl	20 %
Ca^{2+}	1000	**Fe^{3+}**	**10**	NO_2^-	1000	$NaNO_3$	20 %
Cd^{2+}	1000	Hg^{2+}	1000	**Pb^{2+}**	**10**	Na_2SO_4	20 %
CN^-	1000	Mg^{2+}	1000	**S^{2-}**	**10**		
Cr^{3+}	50	Mn^{2+}	1000	**SiO_3^{2-}**	**100**		
$Cr_2O_7^{2-}$	**5**	NH_4^+	1000	Zn^{2+}	1000		

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!
The test reagent is stable up to the date stated on the pack when stored closed at +15 to +25 °C.

Package contents:
1 bottle of reagent PO_4-1
1 AutoSelector

Other reagents and accessories:
MQuant® Phosphate Test, Cat. No. 110428,
measuring range 10 - 500 mg/l PO_4^{3-} (3.3 - 163 mg/l PO_4-P)
MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535
Sulfuric acid 0.5 mol/l Titripur®, Cat. No. 109072
Phosphate standard solution Certipur®, 1000 mg/l PO_4^{3-}, Cat. No. 119898
Hydrochloric acid 25 % for analysis EMSURE®, Cat. No. 100316

Pipettes for pipetting volumes of 1.2 and 5.0 ml
Rectangular cells 10 and 20 mm (2 of each), Cat. Nos. 114946 and 114947

6. Preparation

- Use only phosphate-free detergents to rinse glassware. Otherwise fill with hydrochloric acid (approx. 10 %) and leave to stand for several hours.
- Analyze immediately after sampling.
- Check the phosphate content with the MQuant® Phosphate Test. Samples containing more than 30.0 mg/l PO_4-P must be diluted with distilled water.
- **The pH must be within the range 0 - 10.** Adjust, if necessary, with sulfuric acid.
- Filter turbid samples.

7. Procedure

Pretreated sample (**10 - 40 °C**)	5.0 ml	Pipette into a test tube.
Reagent PO_4-1	1.2 ml	Add with pipette and mix.
Fill the sample into the cell and measure in the photometer.		

Notes on the measurement:

- **Certain photometers may require a blank** (preparation as per measurement sample, but with distilled water instead of sample).
- For photometric measurement the cells must be clean. Wipe, if necessary, with a clean dry cloth.
- Measurement of turbid solutions yields false-high readings.
- The pH of the measurement solution must be within the range 0.5 - 1.0.
- The color of the measurement solution remains stable for at least 60 min.

8. Analytical quality assurance

recommended before each measurement series
To check the photometric measurement system (test reagents, measurement device, handling) and the mode of working, a dilute phosphate standard solution containing 15.0 mg/l PO_4-P (46.0 mg/l PO_4^{3-}) can be used.
Sample-dependent interferences (matrix effects) can be determined by means of standard addition.
Additional notes see under **www.qa-test-kits.com**.
For quality and batch certificates for Spectroquant® test kits see the website, where you will find all data in production control, that are determined in accordance with ISO 8466-1 and DIN 38402 A51.

9. Notes

- Reclose the reagent bottle immediately after use.
- **Information on disposal can be obtained at www.disposal-test-kits.com.**

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