

Overview

The test is suitable for the photometric determination of total phosphate after acidic hydrolysis in accordance with APHA 4500-P E.

The test is suitable for surface water, ground and drinking water and wastewater.

- Measuring range:

10.0–50.0 mg/L PO₄-P (method 0791/0794)

30–150 mg/L PO₄³⁻ (method 0792/0795)

23–110 mg/L P₂O₅ (method 0793/0796)

- Number of tests: 20

- Wavelength for photometric determination: 436 nm

- Shelf life: 12 months

- Reaction time: 10 minutes

- Storage temperature: 15–25 °C

- Storage conditions: upright

Method

Photometric determination of the yellow phosphate-molybdate-vanadate complex after acidic hydrolysis and oxidation at 100–120 °C.

Interferences

The following contaminants do not interfere with the test up to the indicated concentrations. The cumulative effect of different interfering ions has not been tested.

Data in mg/L:

- COD: 200

- Si: 1000

The total P method is not suitable for the analysis of seawater.

The ortho-P method is suitable for the analysis of seawater.

Large amounts of organic substances cause interference. Remedial action: Exclusion with *NanOx* metal (REF 918978), filter with membrane filter, use filtrate as sample.

Reagents and accessories

Contents of reagents set:

- 20 test tubes

- 2 reagent R3

- 1 NANOFIX R2

Required devices:

- MACHEREY-NAGEL photometer

- MACHEREY-NAGEL heating block

- Digital piston pipette 1–5 mL (REF 916909) with pipette tips (REF 916916)

- Digital piston pipette 200–1000 µL (REF 91671) with pipette tips (REF 91667)

- Tweezers for sampling NANOFIX capsules (REF 916114)

Sampling and preparation

See DIN EN ISO 5667-3-A 21 and DIN EN ISO 6878-D11.

Adjust to pH 1–13 prior to analysis.

Quality control

The measurement of a blank value and a standard is recommended before every measuring series as quality control measure.

Quality data:

The following data were determined during production according to ISO 8466–1 and DIN 38402-A51:

- Number of LOTS: 23

- Standard deviation of the method: ± 1 mg/L PO₄³⁻

- Coefficient of variation of the process: ± 1 %

- Confidence interval: ± 2 mg/L PO₄³⁻

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): 1 mg/L PO₄³⁻

- Accuracy of a measurement value: ± 4 mg/L PO₄³⁻

LOT-specific certificates are available at www.mn-net.com.

Procedure

Total phosphate

- Open test tube. Pipette 4 mL of sample into test tube
- Add 1 NANOFIX R2
- Seal test tube and shake vigorously
- Heat for 1 h at 100 °C or for 30 min at 120 °C
- Take the tube from the heating block. Cool to room temperature
- Add 1 mL R3
- Seal test tube and shake vigorously
- Wait 10 min
- Clean outside of test tube
- Measure

Orthophosphate

- Open test tube. Pipette 4 mL of sample into test tube
- Add 1 mL R3
- Seal test tube and shake vigorously
- Wait 10 min
- Clean outside of test tube
- Measure

Notes

To increase the accuracy, it is recommended to perform the measurement with reagent blank value.

Test a sample of distilled water (REF 918932) to generate a blank value for the reagent.

When using other photometers, make sure measurements are possible in test tubes (16 mm OD) and calibrate the method.

Rapid cooling of the cuvette under cold water can cause plug formation by the NANOFIX capsules.

If there is uncertainty regarding the range of the concentration of the sample, a preliminary test with QUANTOFIX® phosphate (REF 91320) or with VISOCOLOR® ECO phosphate (REF 931084) will provide information regarding the necessary dilution for the determination.

When using a standard, the measured value is constant over a period of min. 30 min.

The concentration of the condensed phosphates is determined as the difference between total phosphate without phosphate R2 addition and ortho-phosphate.

Information regarding safety can be found on the box' label and in the safety data sheet. You can download the SDS from www.mn-net.com/SDS.

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www.mn-net.com

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