

REF 985 076

en

Test 0-76

05.11

NANOCOLOR® ortho- and total Phosphate 1**Method:**

Photometric determination as molybdenum blue after acidic hydrolyzes and oxidation at 100–120 °C

Range:	Tube test	Semi-micro cuvette 50 mm
Factor:	0.05–1.50 mg/L P (PO ₄ -P)	0.010–0.800 mg/L P (PO ₄ -P)
	01.89	0.537
Range:	0.2–5.0 mg/L PO ₄ ³⁻	0.03–2.50 mg/L PO ₄ ³⁻
Factor:	005.8	01.64
Wavelength (HW = 5–12 nm):	690 nm	
Decomposition:	30 min at 120 °C or 60 min at 100 °C	
Reaction time:	10 min (600 s) at 20–25 °C	

Contents of reagent set:

20 test tubes total Phosphate 1
 1 tube *NANOFIX* total Phosphate 1 R2
 1 tube *NANOFIX* total Phosphate 1 R3
 1 test tube with 5 mL total Phosphate 1 R4

Hazard warning:

Reagent total Phosphate 1 R4 contains hazards which are not labelled with <Xi> (certificate of exemption for small quantities), see safety data sheet.

Preliminary tests:

If the order of magnitude of the concentration in a sample is not known, a preliminary test with QUANTOFIX® Phosphate (3–100 mg/L PO₄³⁻, REF 913 20) or VISOCOLOR® ECO Phosphate (0.2–5 mg/L PO₄-P, REF 931 084) rapidly gives this information. From the order of magnitude the required dilution can be calculated and prepared directly.

Interferences:

Precipitations after hydrolysis can be removed by membrane filtration prior to the determination. If higher amounts of organic compounds and/or organic phosphorus compounds are present, use *NANOCOLOR® NanOx Metal* (REF 918 978) for decomposition.

The following quantities of ions will not interfere:

≤ 2 mg/L As, NO₂⁻, S²⁻ (only ortho-P); ≤ 20 mg/L Fe, Cu, Cr; ≤ 100 mg/L Si.

The method ortho-P can be applied also for the analysis of sea water.

Procedure:

Requisite accessories: piston pipette with tips

total Phosphate

Open test tube, add
4.0 mL test sample (*the pH value of the sample must be between pH 0 and 10*) and
1 *NANOFIX* total Phosphate R2, screw cap back on to test tube, shake.
(Close NANOFIX tube immediately after use.)
 Place tube in heating block and start heating block.
 After 30/60 min remove test tube from heating block and allow to cool down to room temperature.
 Add
1 *NANOFIX* total Phosphate R3 and
200 µL (= 0.2 mL) total Phosphate R4, mix.
 Clean outside of test tube and measure after 10 min.

ortho-Phosphate

Filter sample solution.
 Open test tube, add
4.0 mL test sample (*the pH value of the sample must be between pH 0 and 10*),
1 *NANOFIX* total Phosphate R3 and
200 µL (= 0.2 mL) total Phosphate R4, screw cap back on to test tube, shake.
 Clean outside of test tube and measure after 10 min.

Notes:

The concentration of condensed phosphates is the difference between total phosphate **without** Phosphate R2 and ortho-phosphate.

Lower ortho-phosphate concentrations (0.010–0.800 mg/L PO₄-P) can be determined by using semi-micro cuvettes 50 mm (REF 919 50):

Test sample	Blank value
Filter sample solution. Open test tube, add 4.0 mL test sample (<i>the pH value of the sample must be between pH 0 and 10</i>), 1 <i>NANOFIX</i> total Phosphate R3 and 200 µL (= 0.2 mL) total Phosphate R4, close and mix.	Open test tube, add 4,0 mL distilled water, 1 <i>NANOFIX</i> total Phosphate R3 and 200 µL (= 0.2 mL) total Phosphate R4, close and mix.

Pour the contents of test tubes into semi-micro cuvettes 50 mm and measure after 10 min.

In analogy, also lower total phosphate concentrations can be determined.

Measurement:

For *NANOCOLOR®* photometers and PF-10/PF-11/PF-12 see manual, test 0-76.

Measurement when samples are colored or turbid:

For all *NANOCOLOR®* photometers see manual, chapter 5.11., use key for correction value.

Photometers of other manufacturers:

For other photometers check whether measurement of round glass tubes is possible. Verify factor for each type of instrument by measuring standard solutions.

Analytical quality control:

NANOCONTROL ortho-Phosphate (REF 925 76) or *NANOCONTROL* Multistandard Sewage outflow 2 (REF 925 010)

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