

REF 985095

Test 0-95

03.23

**NANOCOLOR® ortho- and total Phosphate LR 1**

**Method:**

Photometric determination as molybdenum blue after acidic hydrolyzes and oxidation at 100–120 °C  
The test is equivalent to the EPA method 365.3.

Range:	0.05–0.50 mg/L P (PO <sub>4</sub> -P) 0.2–1.5 mg/L PO <sub>4</sub> <sup>3-</sup>
Wavelength (HW = 5–12 nm):	690 nm/885 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 LR 1
- 1 tube NANOFIX total Phosphate LR 1 R2
- 1 tube NANOFIX total Phosphate LR 1 R3
- 1 test tube with 5 mL total Phosphate LR 1 R4

**Hazard warning:**

Test tubes contain sulfuric acid 5–15 %, reagent R2 contains sodium peroxodisulfate 80–99 %, reagent R4 contains sulfuric acid 5–15 %.

H317, H334 May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P261 sh, P280 sh, P342+311 Avoid breathing dust/vapors. Wear protective gloves/eye protection. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. For further information ask for a 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 PO<sub>4</sub><sup>3-</sup>, REF 91320) or VISOCOLOR® ECO Phosphate (0.2–5 mg/L PO<sub>4</sub>-P, REF 931084) 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 918978) for decomposition.

The following quantities of ions will not interfere: ≤ 2 mg/L As, NO<sub>2</sub><sup>-</sup>, S<sup>2-</sup> (only ortho-P); ≤ 20 mg/L Fe, Cu, Cr; ≤ 100 mg/L Si, < 150 mg/L COD (reference to potassium hydrogen phthalate)

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

**Procedure:**

Requisite accessories: piston pipette with tips

<b>total Phosphate</b> 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 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 R3 and 200 µL (= 0.2 mL) R4, mix. Clean outside of test tube and measure after 10 min.
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<b>ortho Phosphate</b> 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 R3 and 200 µL (= 0.2 mL) R4, screw cap back on to test tube, shake. Clean outside of test tube and measure after 10 min.
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**Notes:**

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

Fast cooling of the cells/cuvettes under cold water can lead to clot formation by the NANOFIX capsules.

**Measurement:**

For MACHEREY-NAGEL photometers see manual, test 0-95.

**Measurement when samples are colored or turbid:**

For all NANOCOLOR® photometers see manual, 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 92576) or NANOCONTROL Multistandard Sewage outflow 2 (REF 925010)

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