

REF 985079

en

Test 0-79

07.17

NANOCOLOR® ortho- and total Phosphate 50**Method:**

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

Range:	10.0–50.0 mg/L P (PO₄-P)	30–150 mg/L PO₄³⁻
Wavelength (HW = 5–12 nm):	436 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:

- 19 test tubes total Phosphate 50
- 1 tube NANOFIX total Phosphate 50 R2
- 2 test tubes with 11 mL total Phosphate 50 R3
- 1 test tube with blank value "NULL"

Hazard warning:

Test tubes contain sulfuric acid 5–15%, reagent R2 contains sodium peroxodisulfate 80–99%, reagent R3 contains sulfuric acid 15–30%, blank value "NULL" contains sulfuric acid 5–15%.

H314, H317, H334 Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P260sh, P280sh, P303+361+353, P305+351+338, P310, P342+311 Do not breathe dust/vapors. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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 PO₄³⁻, REF 91320) rapidly gives this information. From the order of magnitude the required dilution can be calculated and prepared directly.

Interferences:

If the ortho-phosphate content is higher than the total phosphorous content, destroyable colors (turbidities) falsely increase the ortho-phosphate reading.

Precipitations after hydrolysis can be removed by membrane filtration prior to the determination.

Silica < 1000 mg/L Si and COD <200 mg/L (reference to potassium hydrogen phthalate) will not interfere.

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

Procedure:

Requisite accessories: piston pipette with tips

total Phosphorous

Open test tube, add

4.0 mL test sample (*the pH value of the sample must be between pH 1 and 13*) 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, shake once again and allow to cool down to room temperature.

Add

1.0 mL R3, 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 1 and 13*) and

1.0 mL R3, mix.

Clean outside of test tube and measure after 10 min.

Note:

*The concentration of condensed phosphates is the difference between total phosphorous **without 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 0-79.

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 Multistandard Seepage water (REF 925013)