

TUBETESTS® PHOSPHATE/12P

TEST FOR PHOSPHATE IN NATURAL,
DRINKING WATER AND WASTE WATER

Photometer Method

**AUTOMATIC
WAVELENGTH
SELECTION**

**0 – 12 mg/l P
0 – 36 mg/l PO₄**

Phosphates are extensively used in detergent formulations, in food processing and in industrial water treatment processes. These phosphates may be in the form of orthophosphates, or are broken down to orthophosphates in the process concerned. Agricultural fertilisers normally contain phosphate minerals. Phosphates also arise from the breakdown of plant materials and are found in animal wastes.

Phosphates can therefore enter water courses through a variety of routes particularly domestic and industrial effluents and run-off from agricultural land. Phosphate is an important control test for natural and drinking waters.

Whilst phosphates are not generally considered harmful for human consumption, they do exhibit a complex effect on the natural environment. In particular, phosphates are associated with eutrophication of water and with rapid unwanted plant growth in rivers and lakes. Phosphates present in natural water pass through into drinking water supplies.

The Palintest Tubetests Phosphate/12P test provides a simple method of measuring orthophosphate levels over the range 0 - 12 mg/l P (0 - 36 mg/l PO₄). For drinking water, the EC has set a maximum admissible concentration of 2.2 mg/l P (6.7 mg/l PO₄).

Method

In the Palintest Tubetests Phosphate/12P method, the phosphate reacts under acid conditions with ammonium molybdate to form phospho-molybdic acid. The compound is reduced by ascorbic acid to form the intensely coloured 'molybdenum blue' complex. A catalyst is incorporated to ensure complete and rapid colour development, and an inhibitor is used to prevent interference from silica. The reagents are provided in the form of a predispensed tube and two tablets for maximum convenience. The test is simply carried out by adding a sample of the water and one of each tablet.

Reagents and Equipment

Palintest Tubetests Phosphate/12P Tubes

Palintest Tubetests Phos No 1 Tablets

Palintest Tubetests Phos No 2 Tablets

Palintest Automatic Wavelength Selection Photometer

Palintest Pipettor, 2 ml (PT 572)

Test Instructions

- 1 Remove the cap of the Tubetests Phosphate/12P Tube and add 2.0 ml of sample using a pipettor.
- 2 Add one Tubetests Phos No 1 tablet, crush and mix to dissolve. Ensure the tablet is completely dissolved.
- 3 Add one Tubetests Phos No 2 tablet, crush and mix to dissolve. Cap tube and gently invert several times to mix.
- 4 Stand for 10 minutes to allow colour development.
- 5 Select Phot 90 on Photometer for result as mg/l P or Phot 91 for result as mg/l PO_4 .
- 6 Take photometer reading in the usual manner (see Photometer instructions). Use an unused Tubetests Phosphate Tube to set the blank on the photometer. Alternatively, a Tubetests tube containing deionised water only may be used.

Notes

- 1 Phosphate concentrations can be expressed in a number of different ways :-

To convert from PO_4 to P_2O_5 - multiply by 0.75
