

# Phosphate (DEV<sup>1</sup>)

High sensitivity test kit for the determination in the range of 0.01–0.25 mg/L P

## Method:

Phosphomolybdenum blue

## Contents of test kit (\*refill pack):

sufficient for 100 tests

- 5 g PO<sub>4</sub>-1\*
- 80 mL PO<sub>4</sub>-2\*
- 1 black measuring spoon 70 mm\*
- 1 plastic beaker for sampling
- 2 round glass tubes with screw caps
- 1 comparator block
- 1 color comparison disc Phosphate

## Hazard warning:

PO<sub>4</sub>-2 contains sulfuric acid 30–51 %.

H314 Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310 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. Immediately call a POISON CENTER/doctor.

## Procedure:

1. Insert color comparison disc (see illustration).
2. Open both round glass tubes, rinse several times with the water sample and fill up to the mark with the sample.
3. Add 1 level black measuring spoon PO<sub>4</sub>-1 to the right glass tube, close and mix.
4. Add 15 drops PO<sub>4</sub>-2 to the right glass tube, close and mix. Wait 5 min.
5. Reading: Turn color disc until both colors match by transmitted light from above. Read test results from the mark on the front side of the comparator (see illustration). Intermediate values can be estimated.
6. After use clean both round glass tubes thoroughly and close.

mg/L P	mg/L PO <sub>4</sub> <sup>3-</sup>	mg/L P <sub>2</sub> O <sub>5</sub>	mmol/m <sup>3</sup>
0.01	0.03	0.02	0.3
0.02	0.06	0.05	0.6
0.03	0.09	0.07	1.0
0.05	0.15	0.11	1.6
0.07	0.21	0.16	2.3
0.10	0.31	0.23	3.2
0.15	0.46	0.34	4.8
0.20	0.61	0.46	6.5
0.25	0.77	0.57	8.1

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

## Disposing of the samples:

The used analysis specimens can be flushed down the drain with tap water and channelled off to the local sewage treatment works.

## Interferences:

Arsenate ions form a color complex similar to the phosphate complex. Interferences up to 1 mg/L arsenate can be eliminated by reduction to arsenite with thiosulfate.

Oxidizing agents in larger amounts inhibit formation of the blue color complex. They must be destroyed prior to the determination.

The following ions will not interfere:

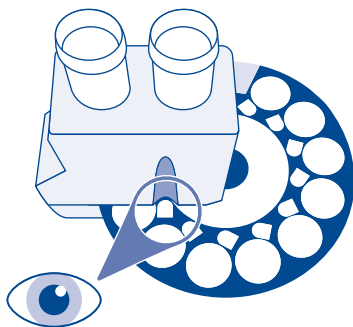
≤ 1 mg/L NO<sub>2</sub><sup>-</sup>

≤ 2 mg/L H<sub>2</sub>S

≤ 10 mg/L heavy metals, Si(IV)

≤ 70 mg/L F<sup>-</sup>

The temperature of the water sample should be between 18 and 30 °C. Outside this range the rate of the reaction decreases by finding less phosphate than actually present.



<sup>1</sup> based on German Standard Methods