

Phosphate (PO_4^{3-})

Performance of test

Please use test tube and reagent with blue colour code. Total reaction time: 5 min.

1. Fill test tube up to the mark with water sample
2. Add 10 drops of reagent 1 and swirl test tube until water sample and reagent solution have mixed
3. Add 1 drop of reagent 2 and swirl test tube until water sample and reagent solution have mixed
4. Leave to rest for 5 minutes. Open the test tube and compare the colour of the water sample with the colour scale applicable for this test
5. For this purpose place the test tube on the round white area of a colour field. And then compare the coloured water sample with the surrounding colour field. The respective concentration is given in mg/l below the colour field.

Limiting values

	Mg/l PO_4^{3-}	Mg/l P_2O_5
EC Drinking Water Regulations	Max. 6,95 mg/l	Max. 5,2mg/l
Recommended value	0,56 mg/l	0,42 mg/l
FRG Drinking Water	Max. 4,7 mg/l	Max. 3,5 mg/l
Measuring range of AQUANAL	0,5...6,0 mg/l	0,38...4,5 mg/l
Pärnu-Jaagupi Drinking Water	0 mg/l	

Avoiding mistakes:

- clean test tube with water

Contents of reagents:

Reagent 1: Ammoniummolybdate, Sodiumsulfate, Sulfuric Acid

Reagent 2: Pyrogallol, Glycerol, Tin (II)-chloride-dihydrate

Nitrite (NO₂⁻)

Performance of test

Please use test tube and reagent with red colour code.

1. Fill test tube up to the mark with water sample
2. Add 2 measuring spoons (combined with the screw cap). Close test tube and shake until dissolution is complete
3. Leave to rest for 3 minutes. Open test tube and compare the colour of the water with the colour scale.
4. For this purpose place the test tube on the round white area of a colour field and compare the coloured water sample with the surrounding colour field. The respective concentration is given in mg/l below the colour field.

Limiting values

EC Drinking Water Regulations	Max. 0,1 mg/l
FRG Drinking Water	Max. 0,1 mg/l
Fish water	Max. 0,03 mg/l
US Drinking Water	Max. 1,0 mg/l
Mineral Water	Max. 0,1 mg/l
Measuring range of AQUANAL	0,02...1,0 mg/l
Pärnu-Jaagupi Drinking Water	Max. 0,1 mg/l

Avoiding mistakes:

- Nitrite reagent is hygroscopic sensitive. Assure measuring spoon is dry.

Contents of reagents:

Reagent: L(+)-Tartaric Acid, Sulfanilamide, N-(Naphthyl)-ethylenediammoniumdichloride

Nitrate (NO₃⁻)

Performance of test

Please use test tube and reagents with yellow colour code. Total reaction time: 10 min.

1. Fill test tube up to the mark with water sample
2. Add 2 measuring spoons (combined with the screw cap) of reagent. Close test tube and shake until dissolution is complete
3. Open test tube and add 1 measuring spoon (combined with the screw cap) of reagent 2. Shake for 1 minute.
4. Leave to rest for 10 minutes. Open test tube and compare the colour of the water sample with the colour scale.
5. For this purpose place the test tube on the round white area of a colour field and compare the coloured water sample with the surrounding colour field. The respective concentration is given in mg/l below the colour field.

Limiting values

EC Drinking Water Regulations	Max. 50 mg/l
FRG Drinking Water Recommended value	Max. 50 mg/l 25 mg/l
Fish water	Max. 20 mg/l
US Drinking Water	Max. 10 mg/l
Mineral Water	Max. 50 mg/l
Measuring range of AQUANAL	10...80 mg/l
Pärnu-Jaagupi Drinking Water	10 mg/l

Avoiding mistakes:

- High Nitrite concentrations may cause misinterpretations of the results
- Not to do the test in water samples coloured obviously

Contents of reagents:

Reagent 1: Sulfanilamide, Boric acid, 2,5-Dihydroxybenzoic acid

Reagent 2: Boric acid, Zinc powder

Ammonium (NH⁺₄)

Performance of test

Please use test tube and reagents with green colour code. Total reaction time: 12 min.

1. Fill the test tube up to the mark with water sample
2. Add 10 drops of reagent nr.1. Swirl test tubes until water sample and reagent solution have mixed.
3. Add 1 measuring spoon reagent nr.2. Close the test tube and shake until dissolution is complete.
4. Open test tube and add 15 drops of reagent nr.3. Swirl test tubes until water sample and reagent solution have mixed.
5. Leave to rest for 7 minutes. Open test tube, and compare the colour of the water sample with the colour scale applicable for this test.
6. For this purpose place the test tube on the round white area of a colour field. Then look into the test tube from the top and compare the coloured water sample with the surrounding colour field. The respective concentration is given in mg/l below the colour field which has the same colour as the coloured water sample. Intermediate values have to be estimated.

Avoiding mistakes

- Work only in a ammonia-free environment
- Adding reagent 1 to your water sample may cause precipitation. It is most likely that this precipitation will dissolve again when reagent 2 is added

Limiting values

FRG Drinking Water	Max. 0,5 mg/l
EC Drinking Water	Max. 0,5 mg/l
Recommended value	0,05 mg/l
Fish water	Max. 0,5 mg/l
Water in swimming pools	Max. 0,1 mg/l
Measuring range of AQUANAL	0.05...10,0 mg/l
Pärnu-Jaagupi Drinking Water	0,05 mg/l

Avoiding mistakes:

- Work only in an ammonia-free environment
- Adding reagent 1 to your water sample may cause precipitation. This problem will dissolve when reagent 2 is added
- Check for contamination

Contents of reagents:

- 1) Sodium hydroxide, Sodium tartrate- 2- hydrate
- 2) Sodium chloride, Sodium sulfate, Sodium- dichloro-iso-cyanurate
- 3) Thymol, Polyethylene glykol, Sodium nitroprusside

pH value

Performance of test

Please use test tube and reagent with black colour code

- 1) Fill test tube up to the mark with water sample.
- 2) Add 3 drops of reagent solution. Swirl test tube until water sample and reagent solution have mixed
- 3) Open test tube and compare the colour of the water sample with the colour scale applicable for this test
- 4) For this purpose place the test tube on the round white area of a colour field. Then look into the test tube from the top and compare the coloured water sample with the surrounding colour field. The respective pH value can be read below the colour field (mg/l)

Avoiding mistakes:

- The colour dots don't show values below or above the measuring range. Exact results can only be got by using pH test sticks

Limiting values

	pH min.	pH max.
FRG Drinking Water	6,5	9,5
EC Drinking Water	6,5	8,5
US Drinking Water	6,5	8,5
Water in swimming pools (EC)	6,0	9,0
Measuring range of AQUANAL	5,0	9,0
Pärnu-Jaagupi Drinking Water	8,5	

Contents of reagents:

Methylred, Bromthymolblue, Phenolphthaleine, Cresolred, Polyethyleneglycol, Propanol

Reaction mechanism: colour change of a mixed indicator

Total hardness (Ca/Mg)

Performance of test

Please use tube and reagent with white colour code

1. Fill the vessel up to the mark with the water sample
2. Add 1 drop of the reagent solution and mix the water sample by shaking. If the water sample is slight pink colour continue this test at point 3. If the water sample is blue, the water is very soft with a total hardness of less than we can test.
3. Add a further quantity of the reagent solution drop wise (holding the reagent solution bottle vertical) while shaking the vessel continuously after each drop. The test is ended when the colour of the water sample turns from red to blue. The total number of drops added up to this colour change gives the overall hardness.
4. Evaluation: 1 drop=1 dH= 0,178 mmol Ca/l
5. 1dH= 1,25e=17,85 US = 1,8 f

Avoiding mistakes:

- Total hardness reagent has got a shelf life of about 20 month. The reagent should be renewed if the colour changes from ink blue to yellowish-brown,
- Add the reagent drop wise and allow colour to develop.
- Directly before the final change the colour is violet for a moment

Classification according to degree of hardness

0-4 d	Very soft water
4-8 d	Soft water
8-18 d	Medium-hard water
18-30 d	Hard water
Over 30 d	Very hard water
Measuring range of AQUANAL	1 drop of reagent= 1,25e = 17,85US
Pärnu-Jaagupi Drinking Water	Soft water

Contents of reagent:

Tris-(hydroxymethyl)-aminomethane, Idranal-II-Magnesium, Idranal-III, 2-Aminoethnol,