

Swimming Pool

**Test kit for performing colorimetric tests
on free chlorine and on the pH value
in swimming pool water**

Methods:

Chlorine: At a pH value of 5 to 6, free chlorine reacts with *N,N*-diethyl-1,4-phenylene diamine (DPD) and forms a red-violet dye.

pH: An indicator dye produces a specific and characteristic colour for every pH value covered.

Measurement ranges:

Cl₂: 0.1 - 2.0 mg/l Cl₂ **pH:** 6.9 - 8.2

Contents of test kit (*refill pack):

sufficient for 150 tests

- 18 ml Cl₂-1*
- 25 ml Cl₂-2*
- 20 ml pH-1*
- 2 screw-plug measuring glasses
- 1 slide comparator
- 2 colour charts
- 1 plastic syringe 5 ml
- 1 instructions for use*

Hazard warning:

This test does not contain any harmful substances which must be specially labelled as hazardous.

Instructions for use:

also refer to the pictograms on the back of the colour charts

a) Free chlorine

1. Pour a 5 ml water sample into one of the measuring glasses using the plastic syringe and place it on position A in the comparator.

Only add the reagent to measuring glass B.

2. Fill the second measuring glass with **3 drops of Cl₂-1**.
3. Add **3 drops of Cl₂-2**.
4. Add a **5 ml water sample** using the plastic syringe, seal the glass and mix.
5. Open the glass and place it on position B in the comparator.
6. Slide the comparator until the colours match in the inspection hole on top. **Immediately** check the measurement reading in the recess on the comparator reed. Mid-values can be estimated.
7. After use, rinse out both measuring glasses thoroughly and seal them.

The chlorine reagents can be used for the **photometric evaluation** with the photometers PF-11 and *VISOCOLOR*® photino.

b) pH

1. Pour a 5 ml water sample into each of the measuring glasses using the plastic syringe.
Place a measuring glass on position A in the comparator.

Only add the reagent to measuring glass B.

2. Add **2 drops of pH-1**, seal the glass and mix.
3. Open the measuring glass and place it on position B in the comparator.
4. Slide the comparator until the colours match in the inspection hole on top. Check the measurement reading in the recess on the comparator reed. Mid-values can be estimated.
5. After use, rinse out both measuring glasses thoroughly and seal them.

Both methods can be used also for analysing 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:

The determination of free chlorine measures bromine, bromamine, chloramine, iodine and, in part, chlorine dioxide as well. Higher manganese compounds simulate free chlorine.

Note:

Determination of bromine besides chlorine: If chlorine is present in the sample, it can be destroyed by adding a spatula of glycine (approx. 20 mg) to 25 ml sample. The sample for the bromine determination is taken from this solution. Result in mg/l Cl₂ x 2.25 = mg/l Br₂.

Conversion table Chlorine:

mg/l Cl ₂	mg/l ClO ₂	mg/l OCl ⁻	mg/l NaOCl	mg/l Br ₂	mg/l I ₂
0.1	0.2	0.1	0.2	0.2	0.4
0.2	0.4	0.3	0.4	0.5	0.7
0.3	0.6	0.4	0.6	0.7	1.1
0.4	0.8	0.6	0.8	0.9	1.4
0.6	1.1	0.9	1.3	1.4	2.1
0.9	1.7	1.3	1.9	2.0	3.2
1.2	2.3	1.7	2.5	2.7	4.3
2.0	3.8	2.9	4.2	4.5	7.2

For swimming pools (in Germany) please note:

If the content of free chlorine is below 0.3 mg/l, add some chlorinating reagent. If the content is above 0.6 mg/l, add fresh water. The ideal pH value is 7.4.

Storage:

Store the test kit in a cool (< 25 °C) and dry place.