



# XEMA<sub>TEST</sub> Aquascreen-5

Enzymatic test for semi-quantitative analysis of water

Test version I (301)

## TEST PRINCIPLE

Enzymatic test strips **XEMA<sub>TEST</sub> Aquascreen-5** are intended for quick visual semi-quantitative determination of total hardness, pH, nitrites, nitrates and chlorine in water. One test strip is intended for testing of single water sample.

Determination of total water hardness is based on chemical reaction between an indicator dye – eriochrome black – with  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  cations which causes concentration-dependent change of the indicator dye color.

Determination of pH is based on color reaction of a mixed acidic-alkaline indicator, the color is dependent on concentration of  $\text{H}^+$  cations.

For determination of nitrites ( $\text{NO}_2^-$ ), a modified Griss reaction is used; the chromogen changes its color intensity depending on nitrites concentration.

Determination of nitrates ( $\text{NO}_3^-$ ) is based on enzymatic reduction of  $\text{NO}_3^-$  to  $\text{NO}_2^-$  – followed by the above mentioned modified Griss reaction.

Chlorine ( $\text{Cl}_2$ ) determination is based on TMB oxidation by chlorine leading to formation of a colored product with color intensity depending on chlorine concentration in water.

Concentration of each component in water is estimated by comparison of color intensity of the relative sensor pad on a strip with its counterpart on the color scale.

## TEST SENSITIVITY

Total hardness. Determination range: 4°d–16°d (1°d = 0.3566 mg-eq/l). Sensitivity – 4°d (1.5 mg-equivalent/liter).

pH. Determination range: 5–9 pH units. Accuracy: 0.5 pH units.

Nitrites ( $\text{NO}_2^-$ ). Determination range for nitrites: 0.5 mg/l –  $\geq$  10 mg/l. Sensitivity – 0.5 mg/l.

Nitrates ( $\text{NO}_3^-$ ). Determination range for nitrates: 10 mg/l –  $\geq$  250 mg/l. Sensitivity – 0.5 mg/l.

Chlorine ( $\text{Cl}_2$ ). Determination range: 1 mg/l – 20 mg/l. Sensitivity – 1 mg/l.

## CONTENTS

- Plastic vial with 50 test strips tightly closed.
- Instruction for use.

## SAMPLES

Indicator test strips **XEMA<sub>TEST</sub> Aquascreen-5** are intended for a quick visual semi-quantitative determination of total hardness, pH, nitrites, nitrates and chlorine in water samples from pools, aquariums, wells, tap water and any other open or closed water sources.

## SAMPLE PREPARATION

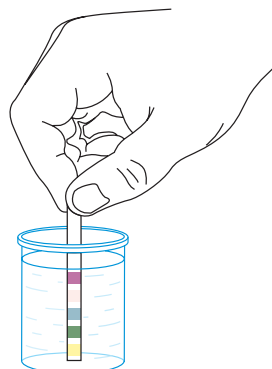
**Before testing, all samples should be brought to room temperature +15...+30 °C; low sample temperature causes decrease in test sensitivity; testing of hot samples is impossible!** Water sample should be taken into a clean receptacle. Testing in the flow is impossible.

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## TEST PROCEDURE

A simple timer and a well-lit place are required to perform the test.

1. All test components and samples should be brought to room temperature +15...+30 °C before running the test.
2. Take a required number of test strips from the vial and close it IMMEDIATELY to avoid exposure to humidity.
3. Dip the strip into the water sample. All the sensor pads should be submerged.
4. After 2–3 sec., take the strip out and remove excess of water by shaking it off or by careful touch of the strip edge to a clean filter paper (paper tissue).
5. Place the test strip onto an even clean dry surface with sensor pads up. After two minutes compare color of each sensor pad with a relevant zone on the color scale attached on the vial label:



Normal ranges for each parameter are determined by state or local sanitary authorities.

## IMPORTANT NOTES

The test strips should be stored in a dry place at +10...+30 °C. Keep away from humidity, vapors of acids, alkali and organic solvents.

- Avoid direct sunlight exposure of test strips and the color scale.
- Color intensity of color scales from different lots may vary – please refer only to the scale supplied with the same lot.
- Test strips should be used within NOT MORE THAN 15 minutes after their taking from the vial.
- After first opening the vial, all test strips should be used within not longer than 6 months.
- All the components of the test kit are disposable; do not use them repeatedly.
- DO NOT TOUCH the sensor pads.
- Do not use the device if the vial is obviously broken and or damaged.
- Do not use the test strips beyond the expiration date.

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## MANUFACTURER:

**XEMA group of companies**

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