

1.10083.0001

MQuant™ Calcium Test

Ca

1. Method

In the presence of hydrogen peroxide calcium ions react with glyoxal-bis(2-hydroxyanil) to form a red complex. The calcium concentration is measured **semiquantitatively** by visual comparison of the reaction zone of the test strip with the fields of a color scale.

2. Measuring range and number of determinations

| Measuring range / color-scale graduation | Number of determinations |
|--|--------------------------|
| 10 - 25 - 50 - 100 mg/l Ca | 60 |

3. Applications

Sample material:

Drinking water
Industrial water
Boiler water and boiler feed water
Beverages and food
Soils and fertilizers

4. Influence of foreign substances

This was checked in solutions with 50 and 0 mg/l Ca. The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

| Concentrations of foreign substances in mg/l | | | | | |
|--|------|-------------------------------|------|-------------------------------|------|
| Ag ⁺ | 400 | Cu ²⁺ | 10 | Ni ²⁺ | 50 |
| Al ³⁺ | 1000 | Fe ²⁺ | 100 | NO ₂ ⁻ | 1000 |
| Ba ²⁺ | 500 | Fe ³⁺ | 100 | NO ₃ ⁻ | 1000 |
| Cd ²⁺ | 10 | Hg ⁺ | 100 | Pb ²⁺ | 1000 |
| Cl ⁻ | 1000 | Hg ²⁺ | 100 | PO ₄ ³⁻ | 1000 |
| CN ⁻ | 1000 | Mg ²⁺ | 1000 | Sn ²⁺ | 200 |
| Co ²⁺ | 50 | Mn ²⁺ | 50 | Sr ²⁺ | 1000 |
| Cr ³⁺ | 350 | MnO ₄ ⁻ | 200 | Zn ²⁺ | 25 |
| CrO ₄ ²⁻ | 1000 | NH ₄ ⁺ | 1000 | | |

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!

The test strips and test reagents are stable up to the date stated on the pack when stored closed at +2 to +8 °C.

Package contents:

Tube containing 60 test strips
1 bottle of reagent Ca-1
1 bottle of reagent Ca-2
1 test vessel

Other reagents:

MColorpHast™ Universal indicator strips pH 0 - 14,
Cat. No. 109535
Sodium hydroxide solution 1 mol/l TitriPUR®,
Cat. No. 109137
Hydrochloric acid 1 mol/l TitriPUR®,
Cat. No. 109057
Calcium chloride dihydrate for analysis EMSURE®,
Cat. No. 102382

6. Preparation

- Samples containing more than 100 mg/l Ca must be diluted with distilled water.
- **The pH must be within the range 4 - 10.** Adjust, if necessary, with sodium hydroxide solution or hydrochloric acid.

7. Procedure

| | | |
|--|---|--|
| Rinse the test vessel several times with the pretreated sample. | | |
| Pretreated sample (15 - 30 °C) | 5 ml | Fill the test vessel to the 5-ml mark. |
| Immerse the reaction zone of the test strip in the pretreated sample for 1 sec. Shake off excess liquid from the strip. Then place the strip aside with the reaction zone facing upwards. | | |
| Reagent Ca-1 | 1 level blue microspoon (in the cap of the Ca-1 bottle) | Add to the test vessel and dissolve by swirling. |
| Reagent Ca-2 | 10 drops ¹⁾ | Add and swirl. |
| Immerse the reaction zone of the test strip in the measurement sample for 45 sec. Remove the strip, shake off excess liquid, and determine with which color field on the label the color of the reaction zone coincides most exactly. Read off the corresponding result in mg/l Ca. | | |

¹⁾ Hold the bottle vertically while adding the reagent!

Notes on the measurement:

- The color of the reaction zone may continue to change after the specified reaction time has elapsed. This must not be considered in the measurement.
- If the color of the reaction zone is equal to or more intense than the darkest color on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 100 mg/l Ca is obtained.

Concerning the result of the analysis, the dilution (see also section 6) must be taken into account:

Result of analysis = measurement value x dilution factor

- This test can also be used as a **general test for heavy metals**. Blue-violet coloration of the reaction zone indicates 10 mg/l of cadmium, grey indicates 10 mg/l of copper and green 25 mg/l of lead.

8. Method control

To check test strips, test reagents, and handling: Dissolve 3.67 g of calcium chloride dihydrate in distilled water, make up to 1000 ml with distilled water, and mix. Ca content: 1000 mg/l. Dilute this standard solution with distilled water to 25 mg/l Ca and analyze as described in section 7. Additional notes see under www.qa-test-kits.com.

9. Notes

- **Reclose** the reagent bottles and **the tube containing the test strips immediately after use.**
- Rinse the test vessel **with distilled water only.**

