

Overview

The test is suitable for the photometric determination of calcium, magnesium and total hardness.

The test is suitable for water.

- Measuring range:

5–50 mg/L Mg²⁺ (method 0441)

10–100 mg/L Ca²⁺ (method 0442)

1.0–20.0 mg/L °d (method 0443)

1–25 mg/L °e (method 0444)

2–36 mg/L °f (method 0445)

0.2–3.6 mmol/L (method 0446)

20–350 mg/L CaCO₃ (method 0447)

- Number of tests: 20
- Wavelengths for photometric determination: 540 / 570 nm
- Shelf life: 18 months
- Reaction time: 1 minute
- Storage temperature: 15–25 °C
- Storage conditions: upright

Method

Photometric determination of total hardness with phthalein purple. The use of a selective masking agent permits a differentiation between calcium and magnesium.

Interferences

The following contaminants do not interfere with the test up to the indicated concentrations. The cumulative effect of different interfering ions has not been tested.

Data in mg/L:

- Cu²⁺: 5

The method is suitable for the analysis of seawater after 1+29 dilution.

Concentrations above the double measuring range can simulate results within the measuring range and can therefore be misinterpreted. Dilute the sample until the measured value is within the measuring range. For waters of unknown concentrations we recommend that you perform the test with widely different dilutions until the last dilution confirms the previous value.

Reagents and accessories

Contents of reagents set:

- 20 test tubes R0
- 1 reagent R3
- 1 NANOFIX R2

Required devices:

- MACHEREY-NAGEL photometer
- Digital piston pipette 200–1000 µL (REF 91671) with pipette tips (REF 91667)
- Digital piston pipette 50–200 µL (REF 916914) with pipette tips (REF 916915)
- Tweezers for sampling NANOFIX capsules (REF 916114)

Sampling and preparation

See DIN EN ISO 5667-3-A 21.

Adjust to pH 4–9 prior to analysis.

Quality control

The measurement of a blank value and a standard is recommended before every measuring series as quality control measure.

LOT-specific certificates are available at www.mn-net.com.

Procedure

Determination of magnesium (method 0441: mg/L Mg), always displayed

Determination of calcium (method 0442: mg/L Ca)

Determination of total hardness (method 0443: in °d / 0444: in °e / 0445: in °f / 0446: in mmol/L / 0447: in mg/L CaCO₃)

1. Open test tube. Add 1 NANOFIX R2
2. Seal test tube and shake for 10 s
3. Wait 2 min
4. Clean outside of test tube
5. Measure blank value
6. Open test tube again. Pipette 0.2 mL of sample into test tube
7. Seal test tube and shake vigorously
8. Wait 1 min
9. Clean outside of test tube
10. Measure (measuring value 1)
11. Open test tube. Add 200 µL R3
12. Seal test tube and shake vigorously
13. Wait 1 min
14. Clean outside of test tube
15. Measure (measuring value 2)

Now the photometer shows values for: 0441: mg/L Mg (always displayed) / 0442: mg/L Ca (always displayed) / 0443–0447: total hardness in the respective dimension as indicated above.

Disposal

Information regarding disposal can be found in the safety data sheet. You can download the SDS from www.mn-net.com/SDS.

Notes

When using a standard, the measured value is constant over a period of min. 30 min.

When using other photometers, make sure measurements are possible in test tubes (16 mm OD) and calibrate the method.

Test a sample of distilled water (REF 918932) to generate a blank value for the reagent.

Information regarding safety can be found on the box' label and in the safety data sheet. You can download the SDS from www.mn-net.com/SDS.

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www.mn-net.com

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