REF 985 044

Test 0-44 03.14
NANOCOLOR® Hardness Ca / Mg

en

Subhead:
Photometric determination of total hardness with phthalein purple. With use of a selective masking agent calcium and magnesium are differentiated.

Range:	**1.0–25.0 °e**	**5–50 mg/L Mg^{2+}**	**10–100 mg/L Ca^{2+}**
Wavelength (HW = 5–12 nm):	**540 nm**		
Reaction time:	**1 min**		
Reaction temperature:	**20–25 °C**		

Contents of reagent set:
20 test tubes Hardness Ca / Mg
1 tube *NANOFIX* Hardness Ca / Mg R2
1 plastic test tube with 5 mL Hardness Ca / Mg R3

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

Interferences:
Copper(II) ions > 5 mg/L interfere with the determination.

The method can be applied also for the analysis of sea water after dilution (1+29).

Note:
Concentrations above the double measuring range can simulate results within the measuring range and thus cause a wrong evaluation. 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 very different dilutions until the last dilution confirms the previous value.

Procedure:
Requisite accessories: piston pipette with tips

Determination of magnesium (method (0)441: mg/L Mg*), *always displayed*
Determination of calcium (method (0)442: mg/L Ca*)
Determination of total hardness (methods (0)443: in °d / (0)444: in °e / (0)445: in °f / (0)446: in mmol/L / (0)447: in mg/L $CaCO_3$)

1. Open test tube, add **1** ***NANOFIX*** R2.
2. Close test tube and shake well for 10 s.
3. Clean outside of test tube.
4. Wait for 2 min.
5. Place test tube in photometer, adjust to zero.
6. Open test tube, add **200 µL** (=0,2 mL) sample *(ATTENTION: the pH value oft he sample must be between 4 and 9).*
7. Close test tube and mix.
8. Clean outside of test tube.
9. Wait for 1 min.
10. Place test tube in photometer and measure – receive value 1.
11. Open test tube, add **200 µL** (=0,2 mL) R3.
12. Close test tube an mix.
13. Clean outside of test tube.
14. Wait for 1 min.
15. Place test tube in photometer and measure – receive 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.

* Cannot be called up, since this submethod is always active

Measurement:
For *NANOCOLOR*® photometers and PF-12*Plus* see manual, test 0-44.

Photometers of other manufacturers:
For other photometers check whether measurement of round glass tubes is possible. Verify calibration curve for each type of instrument by measuring standard solutions.

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