

REF 985 043

en

Test 0-43

03.17

**NANOCOLOR® Hardness 20**

(calcium + magnesium)

**Method:**

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

Range:	1.0–25.0 °e	5–50 mg/L Mg <sup>2+</sup>	10–100 mg/L Ca <sup>2+</sup>
Factor:	not linear		
Wavelength (HW = 5–12 nm):	540 nm		
Reaction time:	1 min		
Reaction temperature:	20–25 °C		

**Contents of reagent set:**

20 test tubes Hardness 20

1 tube NANOFIX Hardness 20 R2

1 plastic test tube with 5 mL Hardness 20 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 total hardness (method (0)431 – (0)434)**

Open test tube, add

**1 NANOFIX R2**, close and shake well.  
(Close NANOFIX tube immediately after use.)

Open test tube again after 2 min, add

**200 µL** (= 0.2 mL) test sample (the pH value of the sample must be between pH 4 and 9), close and mix.

Clean outside of test tube and measure after 1 min.

**Determination of calcium (method (0)435)**

Place test tube with “value total hardness” in photometer and adjust to zero.

Open test tube again, add

**200 µL** (= 0.2 mL) R3, close and mix.

Clean outside of test tube and measure after 1 min.

**Determination of magnesium (method (0)436)**

Place test tube with “value calcium” in photometer and measure.

**Measurement:**

For NANOCOLOR® photometers see manual, test 0-43.

**Measurement when samples are colored or turbid:**

For all NANOCOLOR® photometers see manual, use key for correction value.

**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.