

REF 985 071

en

Test 0-71

04.17

NANOCOLOR® Nickel 4

Method:

In the presence of an oxidizing agent nickel ions react with dimethylglyoxime in an alkaline solution to form a reddish-brown complex.

	Tube test	50 mm semi-micro cuvette
Range:	0.10–7.00 mg/L Ni²⁺	0.02–1.00 mg/L Ni²⁺
Wavelength (HW = 5–12 nm):	470 nm	
Reaction time:	3 min (180 s)	
Reaction temperature:	20–25 °C	

Contents of reagent set:

20 test tubes Nickel 4

2 plastic test tubes each with 11 mL Nickel 4 R2

Hazard warning:

Test tubes contain sodium peroxodisulfate 20–100% and citric acid 40–100%, reagent R2 contains sodium hydroxide solution 5–20%.

H314, H317, H334 Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P260, P261, P272, P280, P301+330+331, P302+352, P303+361+353, P304+340, P305+351+338, P333+313, P342+311, P363 Do not breathe vapors. Avoid breathing dust. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse. For further information ask for a safety data sheet.

Preliminary tests:

If the order of magnitude of the concentration in a sample is not known, a preliminary test with QUANTOFIX® Nickel (10–1000 mg/L Ni²⁺, REF 913 05) rapidly gives this information. From the order of magnitude the required dilution can be calculated and prepared directly.

For test of the absence of interfering complexing agents we recommend a preliminary test with NANOCOLOR® organic Complexing Agents 10 (REF 985 052).

Interferences:

Complexed nickel is not detected by the measurement. Refer to NANOCOLOR® NanOx Metal (REF 918 978) or Crack Set (REF 918 08) for sample pretreatment.

The following quantities of ions will not interfere:

≤ 1 mg/L Mn²⁺; ≤ 10 mg/L Cr(VI), Co²⁺, Cu²⁺; ≤ 50 mg/L Pb²⁺, Ca²⁺, Cr³⁺, Fe³⁺

The method can be applied also for the analysis of sea water after dilution (1+9).

Procedure:

Requisite accessories: piston pipette with tips

Open test tube, add

4.0 mL test sample (*the pH value of the sample must be between pH 3 and 8*), close and dissolve reagents completely.

Add

1.0 mL R2, close and mix.

Clean outside of test tube and measure after 3 min.

Lower nickel concentrations (0.02–1.00 mg/L Ni²⁺) can be determined by using 50 mm semi-micro cuvettes (REF 919 50):

Test sample	Blank value
Open test tube, add	Open test tube, add
4.0 mL test sample (<i>the pH value of the sample must be between pH 3 and 8</i>), close and dissolve reagents completely.	4.0 mL distilled water, close and dissolve reagents completely.
Add	Add
1.0 mL R2, close and mix.	1.0 mL R2, close and mix.

Pour the contents of test tubes into 50 mm semi-micro cuvettes and measure after 3 min [method 1711].

Measurement:

For MACHEREY-NAGEL photometers see manual, test 0-71.

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 factor for each type of instrument by measuring standard solutions.

Analytical quality control:

NANOCONTROL Multistandard Metals 2 (REF 925 016)

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