

REF 918 62

Test 1-62

07.14

NANOCOLOR® Nickel

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Method:

Photometric determination with dimethylglyoxime

Cuvette rectangular:	50 mm	20 mm	10 mm
Range (mg/L Ni ²⁺):	0.01–2.00	0.05–5.00	0.1–10.0
Factor:	01.08	02.65	005.3
Wavelength (HW = 5–12 nm):	436 nm		
Reaction time:	5 min (300 s)		
Reaction temperature:	20–25 °C		

Contents of reagent set:

100 mL Nickel R1
 100 mL Nickel R2
 100 mL Nickel R3
 100 mL Nickel R4

Hazard warning:

Reagent R1 contains potassium bromate 0,1–3 %, reagent R2 contains nitric acid 5–20 %, reagent R3 contains ammonia 10–25 %, reagent R4 contains ethanol 90–98 %.

H314, H350 Causes severe skin burns and eye damage. May cause cancer.

P201, P202, P260, P280, P301+330+331, P303+361+353, P304+340, P305+351+338, P308+313, P405, P501 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors. Wear protective gloves / eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower. IF INHALED: Remove person to fresh air and keep 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 exposed or concerned: Get medical advice / attention. Store locked up. Dispose of contents / container to regulated waste treatment. 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.

Interferences:

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

Nickel cyanide and nickel cyano complexes are not determined.

Refer to NANOCOLOR® NanOx Metal (REF 918 978) or Crack Set (REF 918 08) for sample pretreatment in order to determine total nickel.

Copper interferes: 1 mg/L Cu \triangleq 0,02 mg/L Ni.

The following quantities of ions will not interfere:

\leq 1 mg/L Co, Mn; \leq 5 mg/L Cr; \leq 20 mg/L Fe; \leq 100 mg/L Ca, Zn.

The method can be applied also for the analysis of sea water.

Note:

Please contact MACHEREY-NAGEL for special working instructions concerning a simplified procedure in a beaker (without filling up) and evaluation in 50-mm-cuvette.

Procedure:

Requisite accessories: volumetric flasks 25 mL, piston pipette with tips

Pour into two separate volumetric flasks 25 mL:

Test sample	Blank value
20 mL test sample (the pH value of the sample must be between pH 1 and 13)	20 mL test sample (the pH value of the sample must be between pH 1 and 13)
1 mL R1	–
1 mL R2, mix	–
1 mL R3, mix	–
1 mL R4, mix	–

Note: The yellow colouration formed by addition of R2 must disappear with the addition of R3.

Fill up sample and blank value to 25 mL mark with distilled water and mix again. After 5 min pour into cuvettes and measure.

Measurement:

For NANOCOLOR® photometers see manual, test 1-62.

Measurement when samples are colored or turbid:

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

Photometers of other manufacturers:

Verify factor for each type of instrument by measuring standard solutions.

Analytical quality control:

NANOCONTROL Multistandard Metals 2 (REF 925 016)

Decreasing volume of analytical preparation:

In order to increase the number of determinations, you can work with volumetric flasks of 10 mL: 8 mL test sample + 0.4 mL R1 + 0.4 mL R2 + 0.4 mL R3 + 0.4 mL R4, semi-micro cuvette (REF 919 50).

Disposal:

The contents of cuvettes and flasks can be washed into drain with plenty of water.

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