

REF 918 95

Test 1-95 03.14

NANOCOLOR® Zinc

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Method:

Photometric determination with zincon

Cuvette:	50 mm	20 mm	10 mm
Range (mg/L Zn ²⁺):	0.02–1.50	0.05–1.50	0.1–3.0
Factor:	00.89	02.25	004.5
Wavelength (HW = 5–12 nm):	620 nm		
Reaction time:	1 min (60 s)		
Reaction temperature:	20–25 °C		

Contents of reagent set:

100 mL Zinc R1
100 mL Zinc R2
100 mL Zinc R3

Hazard warning:

Reagent R1 contains potassium cyanide 1–7 %, reagent R3 contains chloral hydrate 20–100 %.
H301, H311, H331, EUH032 Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled. Contact with acids liberates very toxic gas.

P233, P260, P301+310, P302+352, P304+340, P311, P330, P405 Keep container tightly closed. Do not breathe vapors. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician. Rinse mouth. Store locked up. For further details ask for a safety data sheet.

Interferences:

Acidic, basic and buffered test samples should be adjusted to pH 11 after addition of R2. If turbidity occurs after addition of R2, the precipitate has to be removed by centrifugation or membrane filtration (REF 916 50). Only Zn(II) ions are determined. The total zinc can be determined with NANOCOLOR® NanOx Metal (REF 918 978) or Crack set (REF 918 08).

Low results are caused if the chromium(III) concentration exceeds the zinc concentration. Oxidation to chromium(VI) with NANOCOLOR® NanOx Metal is necessary.

The following quantities of ions do not interfere:

< 1000 mg/L Ca²⁺, Cl⁻, SO₄²⁻; < 500 mg/L Cr(VI); < 200 mg/L Mg²⁺; < 50 mg/L Ni²⁺; < 10 mg/L PO₄³⁻; < 5 mg/L Al³⁺, Cu²⁺; < 1 mg/L Cd²⁺, Fe³⁺; < 0.1 mg/L Mn²⁺

For higher manganese concentrations or for the determination of zinc, if a great amount of calcium is present, contact MACHEREY-NAGEL for special working instructions.

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

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 3 and 10)	20 mL distilled water
1 mL R1, mix	1 mL R1, mix
1 mL R2, mix check pH (10.5–11.5)	1 mL R2, mix
wait 2 min	wait 2 min
1 mL R3, do not mix	1 mL R3, do not mix

Fill up sample and blank value to 25 mL mark with distilled water and mix again. After 1 min pour into cuvettes and measure.

Measurement:

For NANOCOLOR® photometers see manual, test 1-95.

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 1 (REF 925 015)

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, semi-micro cuvette (REF 919 50).

Disposal:

The contents of cuvettes and flasks (containing cyanide) can be oxidized with hypochlorite or better with hydrogen peroxide. Control cyanide content after oxidation. If no cyanide is detected, wash the contents into drain with plenty of water.