

REF 918 131

en

Test 1-13

05.15

NANOCOLOR® Cadmium**Extraction method****Method:**

Photometric determination with dithizone

Cuvette rectangular:	50 mm	20 mm	10 mm
Range (mg/L Cd ²⁺):	0.002–0.200	0.01–0.50	0.02–0.50
Factor:	0.125	00.31	00.62
Wavelength (HW = 5–12 nm):	520 nm		
Reaction time:	0		
Reaction temperature:	20–25 °C		

Contents of reagent set:

50 mL Cadmium R1 10 g Cadmium R4
5 g Cadmium R2 2 g wadding

2 x 100 mL Cadmium R3 2 measuring spoons 85 mm

Additionally necessary is tetrachloroethylene p.a. or carbon tetrachloride p.a.

Hazard warning:

Reagent R1 contains citric acid 10–20 %, reagent R3 contains sodium hydroxide solution 20–55 %.

H314 Causes severe skin burns and eye damage.

P260, P280, P301+330+331, P303+361+353, P304+340, P305+351+338, P501 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. Dispose of contents / container to regulated waste treatment. For further information ask for a safety data sheet.

Interferences:

Only dissolved cadmium(II) ions are determined. The total cadmium can be determined with NANOCOLOR® NanOx Metal (REF 918 978) or with cracking set (REF 918 08).

Strongly alkaline and strongly buffered test samples should be adjusted to pH 3 before determination.

The following ions interfere: S²⁻ (by determining less cadmium than actually present), Co²⁺ (brown-violet color) – Cadmium causes a pinkish red color.

The following ions will not interfere: ≤ 10 mg/L Fe³⁺, Mn²⁺, Pb²⁺, Zn²⁺, SCN⁻; ≤ 1 mg/L Hg²⁺, CN⁻, S₂O₃²⁻; ≤ 0.2 mg/L Cu²⁺.

The method cannot be applied for the analysis of sea water.

Procedure (2 extractions):

Requisite accessories: 2 separation funnels 100 mL (REF 916 64), piston pipette with tips

Pour into two separate separation funnels:

Test sample	Blank value
1st extraction: 50 mL test sample (<i>the pH value of the sample must be between pH 1 and 7</i>) 2 mL R1, mix 20 mL organic phase 1 level spoon R2 shake for 1 min after phase separation draw off lower layer completely and discard*	50 mL distilled water – – – (do not perform 1st extraction)
2nd extraction: 4 mL R3, mix 20 mL organic phase 1 level spoon R4 shake for 1 min, allow to separate	2nd extraction: 4 mL R3, mix 20 mL organic phase 1 level spoon R4 shake for 1 min, allow to separate

* If the color of the lower layer is no longer green, significant quantities of interfering heavy metals are present (repeat first extraction with organic phase and R2). Organic phase which is not separated interferes with the second extraction.

After phase separation discard first 2–3 mL of each of the lower layers, then filter lower layers through funnels with wadding into cuvettes and measure.

Measurement:

For NANOCOLOR® photometers see manual, test 1-13.

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)

Disposal:

Organic phase must be collected for waste disposal (chlorinated hydrocarbons). The contents of separation funnels can be washed into drain with plenty of water.