

Overview

Screening test for photometric determination of organic complexing agents.

In the presence of complexing agents, metals partially or entirely evade their photometric determination. This method is a screening test for strong complexing agents. In the event of a positive result, decomposition with NANOCOLOR[®] NanOx Metall (REF 918978) must precede metal analysis.

The test is suitable for surface water, ground and drinking water and wastewater.

- Measuring range:
0.5–15.0 mg/L I_{Bik} (method 0521)
0.5–20.0 mg/L EDTA (method 0522)
- Number of tests: 10–19
- Wavelength for photometric determination: 560 / 540 nm
- Shelf life: 12 months
- Reaction time: 2 minutes
- Storage temperature: 15–25 °C
- Storage conditions: upright

Method

Photometric determination through decolouration of the bismuth xylenol orange complex.

Interferences

The method is suitable for the analysis of seawater after 1+9 dilution.

Reagents and accessories

Contents of reagents set:

- 20 test tubes R0
- 2 test tubes R2
- 1 NANOFIX R3

Required devices:

- MACHEREY-NAGEL photometer
- Digital piston pipette 1–5 mL (REF 916909) with pipette tips (REF 916916)
- Tweezers for sampling NANOFIX capsules (REF 916114)

Standards

- Standard solutions of NTA (Titriplex[®] I) and Na₂EDTA·2H₂O (Titriplex[®] III) can be produced. 100 mg/L NTA correspond to 100 mg/L I_{Bik}; 127 mg/L Na₂EDTA·2H₂O correspond to 100 mg/L EDTA

Sampling and preparation

See DIN EN ISO 5667-3-A 21.

Adjust to pH 2–12 prior to analysis.

Adjust reaction solution to pH <2. Use sulphuric acid, if applicable.

Quality control

The measurement of a blank value and a standard is recommended before every measuring series as quality control measure.

LOT-specific certificates are available at www.mn-net.com.

Implementation without interference from Fe³⁺-ions

A zero value must be used for each analysis.

Blank value:

1. Open test tube
2. Add 1 mL R2
3. Pipette 3.5 mL of distilled water into test tube
4. Seal test tube and shake vigorously
5. Wait 2 min
6. Clean outside of test tube
7. Measure blank value

Sample:

1. Open test tube
2. Add 1 mL R2
3. Pipette 4 mL of sample into test tube
4. Seal test tube and shake vigorously
5. Wait 2 min
6. Clean outside of test tube
7. Measure

Implementation in the presence of Fe³⁺-ions

A zero value must be used for each analysis.

Blank value:

1. Open test tube
2. Add 1 mL R2
3. Pipette 3.5 mL of distilled water into test tube
4. Add 1 NANOFIX R3
5. Seal test tube and shake vigorously
6. Wait 2 min
7. Clean outside of test tube
8. Measure blank value

Sample:

1. Open test tube
2. Add 1 mL R2
3. Pipette 4 mL of sample into test tube
4. Add 1 NANOFIX R3
5. Seal test tube and shake vigorously
6. Wait 2 min
7. Clean outside of test tube
8. Measure

Information regarding disposal can be found in the safety data sheet. You can download the SDS from www.mn-net.com/SDS.

Notes

Some interferences, e.g. high iron contents and certain types of complexing agents, can slow the reaction. In this case, wait until the measured value remains constant.

The measured value will be stable over a relatively long period of time.

When using other photometers, make sure measurements are possible in test tubes (16 mm OD) and calibrate the method.

Test a sample of distilled water (REF 918932) to generate a blank value for the reagent.

Information regarding safety can be found on the box' label and in the safety data sheet. You can download the SDS from www.mn-net.com/SDS.

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