

Overview

The test is suitable for the photometric determination of Fe^{2+/3+}.

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

- Measuring range:

0.10–3.00 mg/L Fe (method 0371/0372/0373)

- 50-mm semi-micro cuvette:

0.02–1.00 mg/L Fe (method 1371)

- Number of tests: 20
- Wavelength for photometric determination: 540 nm
- Shelf life: 18 months
- Reaction time: 5 minutes
- Storage temperature: 15–25 °C
- Storage conditions: upright

Method

Photometric determination: Iron(II) ions react with a triazine derivative to produce a purple colour complex.

Interferences

The following contaminants do not interfere with the test up to the indicated concentrations. The cumulative effect of different interfering ions has not been tested.

Data in mg/L:

- Co²⁺, Cu²⁺: 1
- Cr, Mn²⁺, Ni²⁺, Zn²⁺: 10

Complex iron compounds are not detected. They must be broken down prior to the determination with NANOCOLOR® NanOx Metal (REF 918978). Oxidants interfere with the determination.

The method can be applied for analyzing seawater.

If there is uncertainty regarding the range of the concentration of the sample, a preliminary test with QUANTOFIX® Total iron (REF 91344) will provide information regarding the necessary dilution for the determination.

Reagents and accessories

Contents of reagents set:

- 20 test tubes R0
- 1 NANOFIX R2

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

- NANOCNTROL Multistandard Metals 1 (REF 925015)

Sampling and preparation

See DIN EN ISO 5667-3-A21.

Adjust to pH 2–12 prior to analysis.

Quality control

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

Quality data:

The following data were determined during production according to ISO 8466-1 and DIN 38402-A51:

- Number of LOTs: 27
- Standard deviation of the method: ± 0.02 mg/L Fe
- Coefficient of variation of the process: ± 1.07 %
- Confidence interval: ± 0.04 mg/L Fe

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): ± 0.02 mg/L Fe
- Accuracy of a measurement value: ± 0.06 mg/L Fe

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

Procedure

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

Measurement in a 50-mm semi-micro cuvette

Measurement against zero value (distilled water instead of sample) necessary

1. Open test tube
2. Pipette 4 mL of sample into test tube
3. Add 1 NANOFIX R2
4. Seal test tube and shake vigorously
5. Transfer the contents of the test tube into a 50-mm semi-micro cuvette
6. Wait 5 min
7. Measure

Notes

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

Use the correction value when measuring cloudy or colored samples (see photometer handbook).

To increase the accuracy, it is recommended to perform the measurement of a reagent blank value.

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

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