

Overview

The test is suitable for the photometric determination of total nitrogen. The test is suitable for surface water, ground and drinking water and wastewater.

- Measuring range: 3–60 mg/L N (method 0921)
- Number of tests: 20
- Wavelength for photometric determination: 345/350/365 nm
- Shelf life: 12 months
- Reaction time: 10 minutes
- Storage temperature: 15–25 °C
- Storage conditions: upright

Method

Oxidative decomposition with subsequent interference compensation and photometric determination with 2,6-dimethylphenol in a sulfuric acid/phosphoric acid mixture. The test complies with ISO 23697-1. Decomposition: Analogous to DIN EN ISO 11905-1 H36. Determination: Analogous to ISO 7890-1; DIN 38405-D9.

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:

- Cl⁻, COD: 5000

This method is not suitable for analyzing seawater.

Turbidities cause higher measurement values.

Reagents and accessories

Contents of reagents set:

- 20 test tubes R0
- 20 test tubes RA
- 1 reagent R2
- 1 decomposition reagent
- 1 NANOFIX compensation reagent
- 1 measuring spoon orange

Required devices:

- MACHEREY-NAGEL photometer
- MACHEREY-NAGEL heating block
- Digital piston pipette 200–1000 µL (REF 91671) with pipette tips (REF 91667)

Standards

- NANOCNTROL Multistandard Sewage outflow 1 (REF 925011)

Sampling and preparation

See DIN EN ISO 5667-3-A21.

Adjust to pH 5–9 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: 25
- Standard deviation of the method: ± 0.71 mg/L N
- Coefficient of variation of the process: ± 2.29 %
- Confidence interval: ± 1.64 mg/L N

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): 0.72 mg/L N
 - Accuracy of a measurement value: ± 0.31 mg/L N
- LOT-specific certificates are available at www.mn-net.com.

Procedure

1. Open test tube RA. Pipette 1 mL of sample into test tube
2. Add 1 level measuring spoon of decomposition reagent
3. Seal test tube and shake vigorously
4. Heat for 30 min at 120 °C
5. Take the tube from the heating block. Swirl. Cool to room temperature
6. Open test tube. Add 1 NANOFIX compensation reagent
7. Seal test tube and shake vigorously
8. Open test tube TN_b 60
9. Pipette 0.5 mL decomposition solution into the tube
10. Add 0.5 mL R2
11. Seal test tube and turn upside down 3x
12. Wait 10 min
13. Clean outside of test tube
14. Measure

Notes

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

Correction value e.g. for colored or turbid samples possible (see photometer manual).

The pH value of the sample to be decomposed must be between pH 5 and 9; if necessary, adjust with sodium hydroxide solution or sulfuric acid. Nitrogen concentrations above the double measuring range can simulate results within the single measuring range and thus cause a wrong evaluation. Dilute the sample until the measured value is within the measuring range previously indicated by the test. For waters of unknown concentrations we recommend that you perform the test with very different dilutions (e.g. 1 + 9, 1 + 99) until the last dilution confirms the previous value. For samples which consume large amounts of oxidizing substances (e.g. for COD values above 5000 mg/L O₂), decomposition can be incomplete. In such cases repeat the decomposition with the previously diluted original sample.

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

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

When using a standard, the measured value is constant over a period of min. 30 min.

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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