

## 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: 0.5–22.0 mg/L N (method 0831)
- Number of tests: 20
- Wavelength for photometric determination: 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. Decomposition: Analogous to DIN EN ISO 11905-1 H36. Determination: Analogous to ISO 7890-1; DIN 38405-D9.

## Interferences

The foreign materials shown here do not interfere with the test up to the indicated concentrations (in mg/L). The cumulative effect of different interfering ions has not been tested.

Data in mg/L:

- Cl<sup>-</sup>: 1000

Dilute samples with a COD value of > 1000 mg/L or with significant attrition of oxidizing substances prior to analysis.

This method is not suitable for analyzing seawater.

## Reagents and accessories

Contents of reagents set:

- 2 x 20 test tubes R0
- 1 reagent R2
- 1 NANOFIX compensation reagent

Required devices:

- MACHEREY-NAGEL photometer
- MACHEREY-NAGEL heating block
- Digital piston pipette 1–5 mL (REF 916909) with pipette tips (REF 916916)
- Digital piston pipette 200–1000 µL (REF 91671) with pipette tips (REF 91667)
- Tweezers for sampling NANOFIX capsules (REF 916114)

## Standards

- NANOCONTROL Multistandard Sewage outflow 2 (REF 925010)

## Sampling and preparation

See DIN EN ISO 5667-3-A 21.

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: 24
- Standard deviation of the method: ± 0.21 mg/L N
- Coefficient of variation of the process: ± 1.90 %
- Confidence interval: ± 0.48 mg/L N

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): 0.155 mg/L N
  - Accuracy of a measurement value: ± 0.27 mg/L N
- LOT-specific certificates are available at [www.mn-net.com](http://www.mn-net.com).

## Procedure

1. Open test tube
2. Pipette 5 mL of sample into test tube
3. Seal test tube and shake vigorously
4. Heat for 30 min at 120°C
5. Take the tube from the heating block
6. Swirl
7. Cool to room temperature
8. Open test tube
9. Add 1 NANOFIX compensation reagent
10. Seal test tube and shake vigorously
11. Open test tube TN<sub>b</sub> 22
12. Pipette 0.5 mL decomposition solution into the tube
13. Add 0.5 mL R2
14. Seal test tube and swirl 3x
15. Wait 10 min
16. Clean outside of test tube
17. 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 1000 mg/L O<sub>2</sub>), decomposition can be incomplete. In such cases repeat the decomposition with the previously diluted original sample.

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](http://www.mn-net.com/SDS).

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