NANOCOLOR® COD 60 REF: 985022

Overview

The test is suitable for the photometric determination of the chemical oxygen demand (COD). The test is in accordance with DIN ISO 15705-H45 and is equivalent to EPA Standard Method 5220 D.

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

- Measuring range: 5 – 60 mg/L O_2 (method 0221)
- Number of tests: 20
- Wavelength for photometric determination: 345 / 365 nm
- Shelf life: 12 months
- Reaction time: 120 minutes
- Storage temperature: 2 – 8 °C
- Storage conditions: protected from sunlight, upright.

Method

The organic compounds of a sample are oxidized by heating the sample in a mixture of sulphuric acid and potassium dichromate. The chemical oxygen demand (COD) of a water sample is the concentration of oxygen that is equivalent to the amount of potassium dichromate consumed. The change in the potassium dichromate concentration is determined via the change in absorbance after digestion.

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^-: 1500

Important: For samples in which the chloride content is high, shake the tube to suspend the precipitate prior to adding the sample. If the chloride content is greater than 1500 mg/L, you must dilute the sample or use a chloride masking agent (REF 918911). Once it has reacted in the heating block, the solution must not be cloudy; turbidity can result in suppressed COD values.

The use of precipitated mercury sulphate will allow the turbidity to settle.

This method is not suitable for analyzing seawater.

Turbidity leads to lower measured values.

Reagents and accessories

Contents of reagents set:

- 20 test tubes R0

Required devices:

- MACHEREY-NAGEL photometer
- MACHEREY-NAGEL heating block
- Digital piston pipette 1 – 5 mL (REF 916909) with pipette tips (REF 916916)
- Safety bottle for shaking COD tubes (REF 91637)

Standards

- *NANOCONTROL* COD 60 (REF 92522)
- *NANOCONTROL* Multistandard Sewage outflow 2 (REF 925010)

Sampling and preparation

See DIN EN ISO 5667-3-A21.

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: 75
- Standard deviation of the method: ± 0.5 mg/L O_2
- Coefficient of variation of the process: ± 1.7 %
- Confidence interval: ± 1.3 mg/L O_2

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): 0.4 mg/L O_2
- Accuracy of a measurement value: ± 3.7 mg/L O_2

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

Procedure

1. Put the sediment in the reaction cuvette into suspension by swirling
2. Open round cell and hold slightly tilted. Pipette 2 mL of sample into test tube
3. Seal test tube and shake vigorously (use safety bottle, cuvette will become hot!).
4. Heat for 2 h at 148 °C or for 30 min at 160 °C
5. Take the tube from the heating block
6. Shake again after 10 min. while still warm
7. Cool to room temperature
8. Clean outside of test tube
9. Measure

Notes

In contrast to the conditions described in the ISO 15705, the short time COD is characterized by a higher digestion temperature and reduced reaction time. Therefore we recommend to compare the results of the short time COD from time to time with measurements made under the conditions of ISO 15705 (150 ± 5 °C / 2 h ± 10 min).

Test a sample of COD-free water (REF 918993) to generate a blank value for the reagent.

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

The solution remains cloudy until heated.

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

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

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*.

04/2023

CTL SCIENTIFIC SUPPLY CORP. 1016-3 Grand Boulevard, Deer Park, NY 11729
Tel: **631-242-4249**
Web: **www.ctlscientific.com**

Manufacturer: **Macherey-Nagel GMbH & CO. KG** Rev: 2025-03