

Overview

The test is suitable for the photometric determination of total chromium.

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

- Measuring range:

16-mm-tubes: 0.05–2.00 mg/L Cr (method 0591)

50-mm semi-micro cuvette: 0.005–0.500 mg/L Cr (method 1591)

- Number of tests: 20
- Wavelength for photometric determination: 540 nm
- Shelf life: 24 months
- Reaction time: 35 minutes
- Storage temperature: 15–25 °C
- Storage conditions: upright

Method

Oxidative decomposition in the heating block and photometric determination with diphenylcarbazide. Analogous to APHA 3500-Cr D and DIN 38405 – D24.

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:

Cr: 1000

This method is not suitable for analyzing seawater.

Turbidities cause higher measurement values.

Reagents and accessories

Contents of reagents set:

- 20 test tubes RA
- 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)

Standards

- NANOCONTROL Multistandard Metals 1 (REF 925015)
- NANOCONTROL Chromate (REF 92524)

Sampling and preparation

See DIN EN ISO 5667-3-A 21.

Adjust to pH 1–10 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: 12
- Standard deviation of the method: ± 0.02 mg/L Cr
- Coefficient of variation of the process: ± 1.95 %
- Confidence interval: ± 0.05 mg/L Cr

Specified data for procedure:

- Sensitivity (absorbance of 0.010 A corresponds to): 0.05 mg/L Cr
- Accuracy of a measurement value: ± 0.5 mg/L Cr
- LOT-specific certificates are available at www.mn-net.com.

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Procedure

- Open test tube A. Pipette 5 mL of sample into test tube
- Seal test tube and shake vigorously
- Heat for 30 min at 120°C
- Take the tube from the heating block. Swirl
- Cool to room temperature
- Open test tube R0. Pipette 4 mL decomposition solution into the tube
- Seal test tube and shake vigorously
- Wait 5 min
- Clean outside of test tube
- Measure

Measurement in a 50-mm semi-micro cuvette

- Measurement against zero value (distilled water instead of sample) necessary
- Open test tube A. Pipette 5 mL of sample into test tube
- Seal test tube and shake vigorously
- Heat for 30 min at 120°C
- Take the tube from the heating block. Swirl
- Cool to room temperature
- Open test tube R0. Pipette 4 mL decomposition solution into the tube
- Seal test tube and shake vigorously
- Transfer the contents of the test tube into a 50-mm semi-micro cuvette
- Wait 5 min
- Clean outside of test tube
- Measure

Disposal

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

Notes

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

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

Smaller concentrations can be determined by using 50-mm semi-micro cuvettes (REF 91950).

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

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

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.

07/2021