

1.01632.0001

Spectroquant® Monochloramine Test

1. Method

In the presence of a catalyst monochloramine (NH_2Cl) reacts with thymol to form a blue indophenol derivative that is determined photometrically.

2. Measuring range and number of determinations

Cell mm	Measuring range			Number of determinations
	mg/l Cl_2	mg/l NH_2Cl	mg/l $\text{NH}_2\text{Cl-N}$	
50	0.050 - 2.000	0.036 - 1.452	0.010 - 0.395	
20	0.13 - 5.00	0.09 - 3.63	0.03 - 0.99	
10	0.25 - 10.00	0.18 - 7.26	0.05 - 1.98	150

For programming data for selected photometers / spectrophotometers see www.sigmaldrich.com/photometry.

3. Applications

Sample material:

Drinking water

Wastewater

Disinfectant solutions

This test is **not suited** for seawater.

4. Influence of foreign substances

This was checked individually in solutions containing 5 mg/l Cl_2 . The determination is not yet interfered with up to the concentrations of foreign substances given in the table. Cumulative effects were not checked; such effects can, however, not be excluded.

Concentrations of foreign substances in mg/l or %					
Al ³⁺	1000	Hg ²⁺	100	EDTA	500
Ca ²⁺	1000	Mg ²⁺	100	Primary amines ¹⁾ 0	
Cd ²⁺	100	Mn ²⁺	10	Secondary amines ²⁾ 0	
CN ⁻	1	Ni ²⁺	100	Triethanolamine	500
Cr ³⁺	100	NO ₂ ⁻	100	Surfactants ³⁾	500
Cr ₂ O ₇ ²⁻	1000	Pb ²⁺	1000	Na-acetate	10 %
Cu ²⁺	10	PO ₄ ³⁻	100	NaCl	10 %
F ⁻	10	SiO ₃ ²⁻	500	NaNO ₃	20 %
Fe ³⁺	100	Zn ²⁺	100	Na ₂ SO ₄	20 %

Reducing agents interfere with the determination.

¹⁾ tested with methylamine

²⁾ tested with dimethylamine

³⁾ tested with nonionic, cationic, and anionic surfactants

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!

The test reagents are stable up to the date stated on the pack when stored closed at +15 to +25 °C.

Package contents:

1 bottle of reagent MCA-1

1 bottle of reagent MCA-2

1 AutoSelector

Other reagents and accessories:

MQuant® Universal indicator strips pH 0 - 14, Cat. No. 1.09535

Sodium hydroxide solution 1 mol/l Titripur®, Cat. No. 1.09137

Sulfuric acid 0.5 mol/l Titripur®, Cat. No. 1.09072

Pipettes for pipetting volumes of 0.60 and 10 ml

Rectangular cells 10, 20, and 50 mm (2 of each), Cat. Nos. 1.14946, 1.14947, and 1.14944

6. Preparation

- Analyze immediately after sampling.
- The pH must be within the range 4 - 13.**
Adjust, if necessary, with sodium hydroxide solution or sulfuric acid.
- Filter turbid samples.

7. Procedure

Pretreated sample (20 - 30 °C)	10 ml	Pipette into a test tube.
Reagent MCA-1 (20 - 30 °C)	0.60 ml	Add with pipette and mix.
Leave to stand for 5 min (reaction time A).		
Reagent MCA-2	4 drops ¹⁾	Add and mix.
Leave to stand for 10 min (reaction time B), then fill the sample into the cell, and measure in the photometer.		

¹⁾ Hold the bottle vertically while adding the reagent!

Notes on the measurement:

- Certain photometers may require a blank** (preparation as per measurement sample, but with distilled water instead of sample).
- When using the 50-mm cell**, perform the measurement against a separately prepared blank (preparation as per measurement sample, but with distilled water instead of sample). Configure the photometer for blank measurement.
- For photometric measurement the cells must be clean. Wipe, if necessary, with a clean dry cloth.
- Measurement of turbid solutions yields false-high readings.
- Monochloramine-free samples turn yellow on addition of reagent MCA-2.
- The pH of the measurement solution must be approx. 12.5.
- The color of the measurement solution remains stable for at least 60 min after the end of the reaction time B stated above.

8. Analytical quality assurance

recommended before each measurement series

To check the photometric measurement system (test reagents, measurement device, handling) and the mode of working, a freshly prepared chlorine standard solution containing 5.00 mg/l Cl_2 (corresponds to 3.63 mg/l NH_2Cl) (application see the website) can be used.

Sample-dependent interferences (matrix effects) can be determined by means of standard addition.

Additional notes see under www.qa-test-kits.com.

For quality and batch certificates for Spectroquant® test kits see the website, where you will find all data in production control, that are determined in accordance with ISO 8466-1 and DIN 38402 A51.

9. Notes

- Reclose the reagent bottles immediately after use.
- Information on disposal can be obtained at www.disposal-test-kits.com.**

