

Supelco®

1.14401.0001
1.14401.0007MQuant®
Chloride TestCl⁻

1. Method

Determination with color-card comparator

Chloride ions react with mercury(II) thiocyanate to form slightly dissociated mercury(II) chloride. The thiocyanate released in the process in turn reacts with iron(III) ions to form red iron(III) thiocyanate. The chloride concentration is measured **semiquantitatively** by visual comparison of the color of the measurement solution with the color fields of a color card.

2. Measuring range and number of determinations

Measuring range / color-scale graduation	Number of determinations
5 - 10 - 20 - 40 - 75 - 150 - 300 mg/l Cl ⁻	400

3. Applications

Sample material:

Groundwater, surface water, and seawater (after dilution)
Drinking water and mineral water
Waters from aquaculture
Boiler and boiler feed water, cooling water
Industrial water
Wastewater and percolating water
Process water
Swimming-pool water
Food after appropriate sample pretreatment
Soils after appropriate sample pretreatment

4. Influence of foreign substances

This was checked individually in solutions containing 15 and 0 mg/l Cl⁻. 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 %					
Ag ⁺	1	F ⁻	10	Pb ²⁺	1000
Al ³⁺	100	Fe ³⁺	1000	PO ₄ ³⁻	100
Br ⁻	1	Hg ²⁺	1000	S ²⁻	1 ¹⁾
Ca ²⁺	1000	K ⁺	1000	SCN ⁻	1000
Cd ²⁺	1000	Mg ²⁺	100	SiO ₃ ²⁻	1000
CN ⁻	1	Mn ²⁺	100	SO ₃ ²⁻	1000
Cr ³⁺	100	NH ₄ ⁺	1000	S ₂ O ₈ ²⁻	100
Cr ₂ O ₇ ²⁻	1	Ni ²⁺	100	Zn ²⁺	1000
Cu ²⁺	100	NO ₂ ⁻	100		
				Ascorbic acid	100
				NaNO ₂	20 %
				Na ₂ SO ₄	0.2 %

¹⁾ In cases of higher concentrations, eliminate sulfide ions by adding hydrogen peroxide (1 drop of Perhydrol® per 10 ml of sample).

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:

2 bottles of reagent Cl-1
2 bottles of reagent Cl-2
1 graduated 5-ml plastic syringe
2 test tubes with screw caps (in comparator block)
1 color card usable for Cat. Nos. 1.14401.0001 and 1.14401.0007

Other reagents:

Hydrogen peroxide 30 % H₂O₂ (Perhydrol®) for analysis EMSURE®, Cat. No. 107209
MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535
Ammonia solution 25 % for analysis EMSURE®, Cat. No. 105432
Nitric acid Titrisol® for 1mol/l, Cat. No. 109966
Chloride standard solution Certipur®, 1000 mg/l Cl⁻, Cat. No. 119897

Refill pack:

Cat. No. 118322

Chloride Test

Refill pack for 114753 and 144401

(Reagents **without technical accessories** for the number of determinations stated in section 2)

6. Preparation

- Analyze immediately after sampling.
- The pH must be within the range 1 - 12.**
Adjust, if necessary, with ammonia solution or nitric acid.
- Filter turbid samples.

7. Procedure

Open the box and set up with both test tubes **on the left**.

Slide the comparator block all the way to the left, so that the end holding the test tubes protrudes laterally over the bottom part of the box.

Unfold the color card and insert it, colored end first, into the slit at the lower **right-hand** edge of the box.

	Measurement sample tube nearer to the tester (A)	Blank tube farther from the tester (B)	
Pretreated sample (10 - 30 °C)	2.5 ml	2.5 ml	Inject into the test tube with the syringe.
Reagent Cl-1	3 drops ¹⁾	-	Add, close the tube, and mix.
Reagent Cl-2	3 drops ¹⁾	-	Add, close the tube, and mix.

Slide the color card through to the left until the closest possible color match is achieved between the two open test tubes when viewed from above.

Read off the result in mg/l Cl⁻ from the color card at the lower right-hand edge of the comparator block within the bottom part of the box.

¹⁾ **Hold the bottle vertically while adding the reagent!**

Notes on the measurement:

- The color of the measurement solution remains stable for at least 60 min after the addition of reagent Cl-2.
- Turbidity in the measurement solution makes the color comparison more difficult.
- If the color of the measurement solution is equal to or more intense than the darkest color on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 300 mg/l Cl⁻ is obtained.
Concerning the result of the analysis, the dilution must be taken into account:

$$\text{Result of analysis} = \text{measurement value} \times \text{dilution factor}$$

8. Method control

To check test reagents, measurement device, and handling: Dilute the chloride standard solution with distilled water to 75 mg/l Cl⁻ and analyze as described in section 7.
Additional notes see under www.qa-test-kits.com.

9. Notes

- Reclose the reagent bottles immediately after use.
- Rinse the test tubes and the syringe **with distilled water only**.
- The contents of the test tubes as well as the test reagents must not be run off with the wastewater!**
Information on disposal can be obtained at www.disposal-test-kits.com.

