Supelco®

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Spectroquant®

Chloride Cell Test

Cl^-

1. Method

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 that is determined photometrically.
The method is analogous to EPA 325.1 and APHA 4500-Cl^- E.

2. Measuring range and number of determinations

Measuring range	Number of determinations
0.5 - 15.0 mg/l Cl^-	25

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

3. Applications

Sample material:
Groundwater and surface water
Drinking water and mineral water
Industrial water
Wastewater and percolating water
This test is **not suited** for seawater.

4. Influence of foreign substances

This was checked individually in solutions containing 7.5 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**	**Hg^{2+}**	**1**	EDTA	500
Al^{3+}	200	**I^-**	**1**	**Free chlorine**	**0.5**
Br^-	**0.5**	K^+	1000	Anionic Surfactants [1]	100
Ca^{2+}	1000	Mg^{2+}	200	**Cationic Surfactants [2]**	**1**
Cd^{2+}	500	Mn^{2+}	500	Nonionic Surfactants [3]	50
CN^-	**0.2**	NH_4^+	1000	H_2O_2	50
CO_3^{2-}	200	Ni^{2+}	200	Na-acetate	0.05 %
Cr^{3+}	50	NO_2^-	20	$NaNO_3$	0.5 %
$Cr_2O_7^{2-}$	**2**	Pb^{2+}	1000	Na_2SO_4	0.05 %
Cu^{2+}	200	PO_4^{3-}	100		
F^-	20	**S^{2-}**	**1**		
Fe^{3+}	100	Zn^{2+}	200		

[1] tested with Na-dodecyl sulfate
[2] tested with N-cetyl-N,N,N-trimethylammonium bromide
[3] tested with Triton® X-100

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 Cl-1K
25 reaction cells
1 sheet of round stickers for numbering the cells

Other reagents and accessories:
MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535
Ammonia solution 25 % for analysis EMSURE®, Cat. No. 105432
Nitric acid Titrisol® for 1 mol/l, Cat. No. 109966
Chloride standard solution CRM, 1.00 mg/l Cl, Cat. No. 133010
Chloride standard solution CRM, 2.50 mg/l Cl, Cat. No. 133011
Chloride standard solution CRM, 10.0 mg/l Cl, Cat. No. 132229

Pipettes for pipetting volumes of 0.25 and 10 ml

6. Preparation

- Analyze immediately after sampling.
- **The pH must be within the range 3 - 11.**
  Adjust, if necessary, with dilute ammonia solution or nitric acid.
- Filter turbid samples.

7. Procedure

Pretreated sample (**15 - 40 °C**)	10 ml	Pipette into a reaction cell, close the cell, and mix.
Reagent Cl-1K	0.25 ml	Add with pipette, close the cell, and mix.
Leave to stand for 10 min (reaction time), then measure the measurement sample in the photometer.		

Notes on the 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.
- The pH of the measurement solution must be approx. 1.5.
- The color of the measurement solution remains stable for at least 60 min after the end of the reaction time 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, the chloride standard solutions CRM (see section 5) 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 bottle immediately after use.
- **The test reagents must not be run off with the wastewater! Information on disposal can be obtained at www.disposal-test-kits.com.**

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