

Supelco®

1.02532.0001

Spectroquant® Sulfate Cell Test

SO₄²⁻

1. Method

Sulfate ions react with barium ions to form slightly soluble barium sulfate. The resulting turbidity is measured in the photometer (turbidimetric method).

The method is analogous to EPA 375.4, APHA 4500-SO₄²⁻ E, and ASTM D516-16.

2. Measuring range and number of determinations

Measuring range	Number of determinations
1.0 - 50.0 mg/l SO ₄ ²⁻	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
Wastewater
Nutrient solutions for fertilization
Soils after appropriate sample pretreatment
Water for concrete in the construction industry
This test is **not suited** for seawater.

4. Influence of foreign substances

This was checked individually in solutions containing 25 and 0 mg/l SO₄²⁻. 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	Fe ³⁺	50	S ²⁻	5
Al ³⁺	1000	Hg ²⁺	500	SiO ₃ ²⁻	1000
Ca ²⁺	1000	Mg ²⁺	1000	SO ₃ ²⁻	5
Cd ²⁺	1000	Mn ²⁺	1000	S ₂ O ₃ ²⁻	2
CN ⁻	250	NH ⁺	1000	Zn ²⁺	1000
CO ₃ ²⁻	500	Ni ²⁺	500	EDTA	50
Cr ³⁺	5	NO ₂ ⁻	1000	Hydrazine	1000
Cr ₂ O ₇ ²⁻	2	NO ₃ ⁻	50	Anionic surfactants	0.5
Cu ²⁺	1000	Pb ²⁺	2	Cationic surfactants	250
F ⁻	100	PO ₄ ³⁻	100	Nonionic surfactants	250
				Na-acetate	10 %
				NaCl	2 %

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 SO₄-1K
25 reaction cells
1 sheet of round self-adhesive stickers for numbering the cells

Other reagents and accessories:

MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535
Sodium hydroxide solution 1 mol/l Titripur®, Cat. No. 109137
Hydrochloric acid 1 mol/l Titripur®, Cat. No. 109057
Membrane filters 0.45 µm
Sulfate standard solution Certipur®, 1000 mg/l SO₄²⁻, Cat. No. 119813

Pipette for a pipetting volume of 10 ml

6. Preparation

- Analyze immediately after sampling.
- The pH must be within the range 2 - 10.** Adjust, if necessary, with sodium hydroxide solution or hydrochloric acid.
- Filter turbid samples through a 0.45 µm membrane filter.

7. Procedure

Pretreated sample (20 - 40 °C)	10 ml	Pipette into a reaction cell and mix.
Reagent SO ₄ -1K	1 level green microspoon (in the cap of the SO ₄ -1K bottle)	Add, close the cell tightly, and shake vigorously until the reagent is completely dissolved.
Leave to stand for exactly 2 min (reaction time) , then measure the sample in the photometer.		

Notes on the measurement:

- For turbidimetric measurement the cells must be clean. Wipe, if necessary, with a clean dry cloth.
- The pH of the measurement solution must be within the range 1.0 - 2.0.

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 dilute sulfate standard solution containing 25.0 mg/l SO₄²⁻ 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.
- Information on disposal can be obtained at www.disposal-test-kits.com.**

