

Supelco®

1.17945.0001

Reflectoquant® plus Potassium Test

K

1. Method

In alkaline solution potassium ions react with Kalignost® (sodium tetraphenyl-borate) to form a slightly soluble precipitate. The resulting turbidity is evaluated reflectometrically.

2. Measuring range and number of determinations

Measuring range	Number of determinations
1.0 - 25.0 mg/l K	100

3. Applications

Sample material:

Groundwater, drinking water, and surface water

Soils after appropriate sample pretreatment (**application see the website**)

Pressed plant juice after appropriate sample pretreatment

4. Influence of foreign substances

This was checked individually in solutions with 10 mg/l K. 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	Mn ²⁺	1000
Ca ²⁺	1000	NH ₄ ⁺	50
Cd ²⁺	1000	Ni ²⁺	1000
CN ⁻	100	NO ₂ ⁻	1000
Cr ³⁺	10	Pb ²⁺	1000
Cr ₂ O ₇ ²⁻	1000	PO ₄ ³⁻	1000
Cu ²⁺	100	S ²⁻	1000
Fe ³⁺	1000	SiO ₃ ²⁻	1000
Hg ²⁺	100	SO ₃ ²⁻	1000
Mg ²⁺	1000	Zn ²⁺	1000
		EDTA	10 %
		Anionic surfactants ¹⁾	250
		Cationic surfactants ²⁾	250
		Nonionic surfactants ³⁾	250
		Oxidizing agents	
		(H ₂ O ₂)	1000
		Na-acetate	20 %
		NaCl	20 %
		NaNO ₃	20 %
		Na ₂ SO ₄	20 %

¹⁾ tested with Na-dodecyl sulfate

²⁾ tested with N-cetylpyridinium chloride

³⁾ tested with polyvinylpyrrolidone

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 K-1
1 bottle of reagent K-2
1 bottle of reagent K-3
2 test vessels with stoppers
2 suction pipettes
1 bar-code strip

Other reagents and accessories:

MQuant® Ammonium Test, Cat. No. 110024, measuring range 10 - 400 mg/l NH₄⁺
MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535
MQuant® pH-indicator strips pH 7.5 - 14, Cat. No. 109532
Sodium hydroxide solution 1 mol/l Titripur®, Cat. No. 109137
Sulfuric acid 0.5 mol/l Titripur®, Cat. No. 109072
Potassium standard solution Certipur®, 1000 mg/l K, Cat. No. 170230
Empty cells for RQflex® plus (100 pcs), Cat. No. 116727

6. Preparation

- Extract solid sample materials by an appropriate method (applications see the website).
- Check the ammonium content with the MQuant® Ammonium Test. Samples containing more than 50 mg/l NH₄⁺ must be diluted with distilled water.
- Samples containing more than 25.0 mg/l K must be diluted with distilled water.
- The pH must be within the range 5 - 12.** Adjust, if necessary, with sodium hydroxide solution or sulfuric acid.
- Filter turbid samples.

7. Procedure

Observe the manual for the RQflex® plus reflectometer. The following applies to the Potassium Test:

Measurement procedure E (for cell measurement)

Stored waiting time: 300 sec

Stored reaction time: 5 sec

Rinse both test vessels several times with the pretreated sample.			
	Measurement sample	Blank (only 1x per series)	
Pretreated sample (20 - 30 °C)	5 ml	5 ml	Fill the test vessel to the 5-ml mark.
Reagent K-1	10 drops ¹⁾	-	Add and mix. The pH must be within the range 10.0 - 11.5. Check with MQuant® pH-indicator strips. Adjust the pH, if necessary, with sodium hydroxide solution.
Reagent K-2	6 drops ¹⁾	-	Add and mix.
Reagent K-3	1 level blue microspoon (in the cap of the K-3 bottle)	-	Add immediately and swirl until the reagent is completely dissolved.

Press the START button of the reflectometer. After the end of the waiting time (the reaction time is shown on the display), swirl the measurement sample, then pipette the measurement sample and the blank into two separate cells by means of two suction pipettes. In doing so, always fill **both** compartments of each cell to the upper limit of the transparent area.

Place the cell with the blank into the cell adapter, close the lid, and press the START button.

As soon as required on the display, place the cell with the sample into the cell adapter, close the lid, and press the START button anew.

After the end of the reaction time, read off the result from the display in mg/l K. The result is automatically stored.

¹⁾ Hold the bottle vertically while adding the reagent!

Notes on the measurement:

- Immediately after the measurement, remove the cell from the cell adapter.**
 - For measurement the cells must be clean. Wipe, if necessary, with a clean dry cloth.
 - If the measurement value exceeds the measuring range (HI is shown on the display), repeat the measurement using **fresh**, diluted samples until a value of less than 25.0 mg/l K is obtained.
- In the presence of potassium contents greater than approx. 50 mg/l the display again shows measurement values instead of HI. These values are, however, not correct.
- Concerning the result of the analysis, the dilution (see also section 6) 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 (recommended before each measurement series):

Dilute the potassium standard solution with distilled water to 10.0 mg/l K 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 vessels, the suction pipettes, and the cells **with distilled water only**.

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