1.00826.0001

Spectroquant®

Boron Cell Test

B

1. Method

In a weakly acidic solution borate reacts with azomethine H to form a yellow compound that is determined photometrically.
The method is analogous to DIN 38405-17.

2. Measuring range and number of determinations

Measuring range	Number of determinations
0.05 - 2.00 mg/l B	25

For programming data for selected photometers / spectrophotometers see www.service-test-kits.com.

3. Applications

This test also measures all the boron contained in sodium perborate.

Sample material:
Groundwater, surface water, and seawater
Drinking water
Detergents and cleansing agents containing sodium perborate
Nutrient solutions for fertilization
Soils after appropriate sample pretreatment

4. Influence of foreign substances

This was checked in solutions containing 1 and 0 mg/l B. The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

Concentrations of foreign substances in mg/l or %			
Al^{3+}	100	NaCl	10 %
Fe^{3+}	50	$NaNO_3$	20 %
Cr^{3+}	25	Na_2SO_4	20 %
Cu^{2+}	50		

5. Reagents and auxiliaries

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

Other reagents and accessories:
MColorpHast™ Universal indicator strips pH 0 - 14, Cat. No. 109535
Sodium hydroxide solution 1 mol/l CertiPUR®, Cat. No. 109137
Nitric acid Titrisol® for 1 mol/l, Cat. No. 109966
Boron standard solution CertiPUR®, 1000 mg/l B, Cat. No. 119500

Pipettes for pipetting volumes of 1.0 and 4.0 ml

6. Preparation

- Analyze immediately after sampling.
- **The pH must be within the range 2 - 12.**
  Adjust, if necessary, with sodium hydroxide solution or nitric acid.
- Filter turbid samples.

7. Procedure

Reagent B-1K	1.0 ml	Pipette into a reaction cell and mix.
Pretreated sample (**15 - 40 °C**)	4.0 ml	Add with pipette, close the cell, and shake until the reagent is completely dissolved.
Leave to stand for 60 min (reaction time), then measure the 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 within the range 5.2 - 6.0.
- 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, a dilute boron standard solution containing 1.00 mg/l B 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**.

Characteristic quality data:

In the production control, the following data were determined in accordance with ISO 8466-1 and DIN 38402 A51:

Standard deviation of the method (mg/l B)	± 0.025
Coefficient of variation of the method (%)	± 2.5
Confidence interval (mg/l B)	± 0.06
Number of lots	27

Characteristic data of the procedure:

Sensitivity: Absorbance 0.010 A corresponds to (mg/l B)	0.01
Accuracy of a measurement value (mg/l B)	max. ± 0.09

For quality and batch certificates for Spectroquant® test kits see the website.

9. Notes

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

Merck KGaA, 64271 Darmstadt, Germany,
Tel. +49(0)6151 72-2440
www.analytical-test-kits.com

EMD Millipore Corporation, 290 Concord Road,
Billerica, MA 01821, USA, Tel. +1-978-715-4321