



Determination of inorganic cations in water samples

INTRODUCTION

The method is used for the determination of the mass concentration of ammonium, potassium, sodium, lithium, magnesium, strontium, barium and calcium in samples of drinking, natural, waste waters, and other aqueous matrices by capillary electrophoresis.

MEASUREMENT METHOD

The measurement method is based on capillary zone electrophoresis with indirect UV detection at the wavelength of 267 nm.

MEASUREMENT RANGE

The measurement ranges for the components are presented in the table below.

Component	Measurement range, mg/L
Ammonium, potassium, sodium, calcium	0.5–5000
Lithium	0.015–2.0
Magnesium	0.25–2500
Strontium	0.25–50
Barium	0.1–10.0



EQUIPMENT AND REAGENTS

The Capel capillary electrophoresis system is used in measurements. Data acquisition, collection, processing, and output are performed using a personal computer running under Windows® operating system with Elforun software installed.

Lumex Instruments set, order No. 0300001763,

Lumex Instruments kit, order No. 0300001550 (available in certain countries, contact your local distributor).

EXAMPLES OF REAL ANALYSES

BGE: benzimidazole, with tartaric acid and 18-crown-6

Capillary: L_{eff}/L_{tot} 50/60 cm, ID 75 μ m

Injection: 150 mbar \times s

Voltage: 25 kV

Temperature: 20 °C

Detection: 267 nm

Sample: natural water

Found (mg/L):

1 – ammonium (0.5)

2 – potassium (12.7)

3 – sodium (28)

4 – lithium (0.1)

5 – magnesium (13.7)

6 – strontium (3.5)

7 – calcium (93)

