LUMEX Analytical Equipment

HIGH PERFORMANCE CAPILLARY ELECTROPHORESIS SYSTEM CAPEL series

DETERMINATION OF INORGANIC ANIONS IN AQUEOUS MATRICES ACCORDING TO *EPA 6500* AND *ASTM D6508-10* TEST METHODS

EPA 6500
ASTM D6508-10

INTRODUCTION

This test method is applicable for determination of the dissolved inorganic anions; fluoride, bromide, chloride, nitrite, nitrate, ortho-phosphate, and sulfate in aqueous matrices using capillary ion electrophoresis with indirect UV detection. The method can be applied to **drinking water**, **wastewater** and **ground water**.

MEASUREMENT METHOD

The capillary electrophoresis method for determination of inorganic anions' concentrations is based on differential migration and separation of anions in the electric field due to different electrophoretic mobility. Identification and quantitative determination of the analyzed anions are performed using indirect detection by measuring the UV absorption.

MEASUREMENT RANGE

Anions	Measurement range, mg/L
Chloride, bromide, nitrite, sulfate, nitrate, *ortho*-phosphate	0.1–50
Fluoride	0.1–25

EQUIPMENT AND REAGENTS

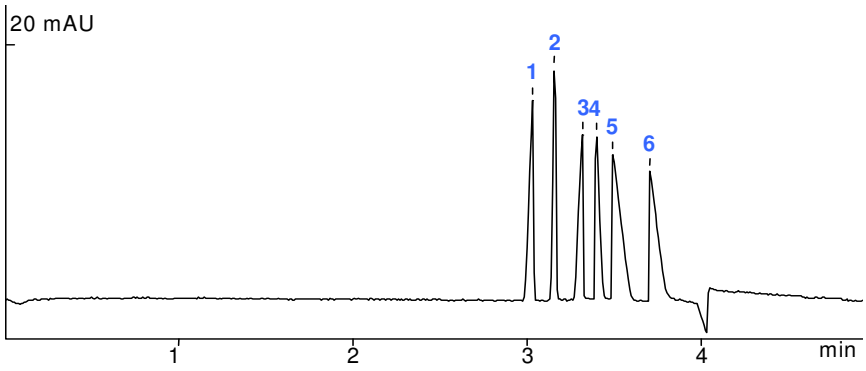
The CAPEL® capillary electrophoresis system is used in measurements. Data acquisition, collection, processing and output are performed using a personal computer running under WINDOWS® XP/7/8 operating system with installed dedicated software package ELFORUN®. All reagents must be of analytical grade or better.

EXAMPLE OF A REAL ANALYSIS

BGE: Chromate, with TTAOH, CHES, and Calcium Gluconate
Capillary: L_{eff}/ L_{tot} 50/60 cm, ID 75 µm
Injection: 300 mbar x sec
Voltage: – 15 kV
Temperature: RT
Detection: 254 nm, indirect

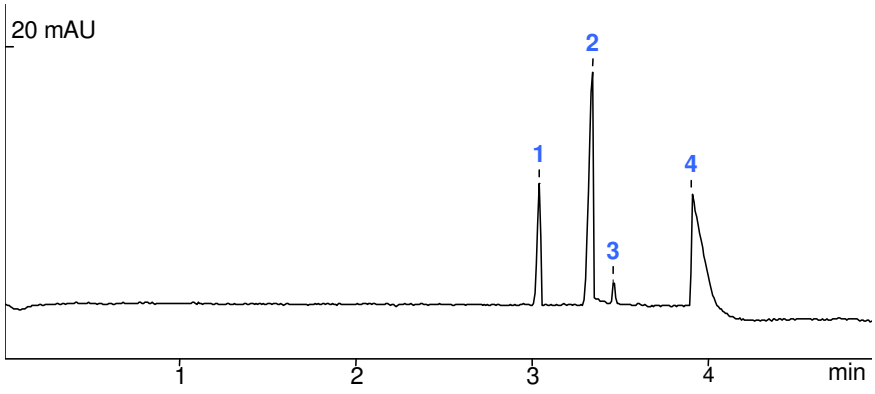
Sample: test solution

1 – chloride (20 mg/L)
2 – nitrite (20 mg/L)
3 – sulfate (20 mg/L)
4 – nitrate (20 mg/L)
5 – fluoride (10 mg/L)
6 – phosphate (20 mg/L)



Sample: tap water

Measurement results:
1 – chloride (7.78 mg/L)
2 – sulfate (26.3 mg/L)
3 – nitrate (1.66 mg/L)
4 – carbonate



The information in this leaflet is supplemental. To get more specific, please contact the manufacturer of CAPEL® CE systems Lumex Instruments Group.