



Determination of fluoride anion in wastewater



CE is a valuable technic to solve specific problem in the analysis of very complex matrices

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INTRODUCTION

At the request of a local water analysis laboratory, Wynsep laboratory develop a capillary electrophoresis method for the analysis of fluoride anion in complex wastewater. This method was carried out with the Wyn-CE capillary electrophoresis system and an easy to use and sensitive contactless conductimetry detection (C4D).

SEPARATION CONDITIONS

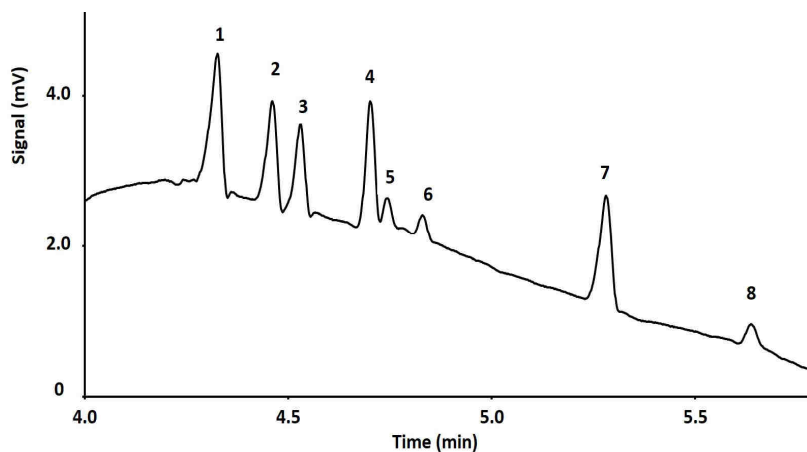
EOF modifier : hexadimethrine bromide 1 % in water
Buffer : Tris + CHES, pH 8.6
Capillary : bare-fused silica, L = 90 cm, l = 78 cm, ID = 75 μ m
Injection : electrokinetic, -2 kV, 6 s
Voltage : -25 kV
Detection : C4D, frequency 500 kHz, A = 70%
Temperature : 25 °C

Standard sample :

1-chloride ; 2-nitrite ; 3-nitrate ;
 4- sulfate ; 5-perchlorate ; 6- chlorate ;
 7- fluoride ; 8- phosphate.
 Concentration : 20 μ g/L

Repeatability (n=10)

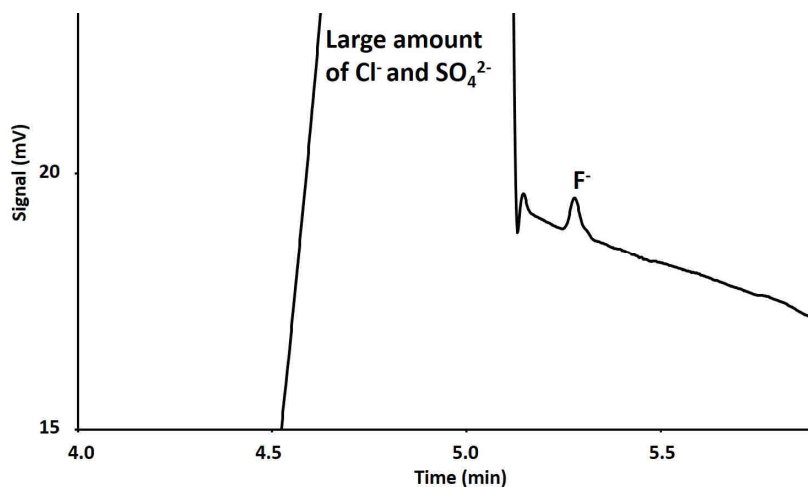
RSD (migration times) = 0.5 %
 RSD (peak areas) = 2.1 %
 R² for F⁻ calibration = 0.998



Research of F⁻ in wastewater :

(Dilution 1/50)
 Concentration of F⁻ in extract = 12 mg/L

Cl⁻ and SO₄²⁻ : not quantified



Results were in good agreement with IC results obtained by the local water analysis lab.