

C⁴D for Ion Chromatography with Planar Headstage

The eDAQ C⁴D system was connected directly to 1/16th inch HPLC tubing and used to detect six anions.

Introduction

The eDAQ Planar Headstage for C⁴D (product ET123) is a contactless conductivity detector for ion chromatography (IC) and high-performance liquid chromatography (HPLC) instruments. It is designed to connect directly to 1/16th inch (1.6 mm) outer diameter tubing, the standard for IC and HPLC.

Connecting the detector immediately after the separation column, as shown in Figure 1, greatly reduces extra-column band broadening (remixing of the analytes after the column) because the "dead volume" is reduced.

A sample containing 1 mM fluoride, chloride, nitrate, bromide, pyruvate and nitrate was analysed; the chromatogram is shown in Figure 2.

The method used was similar to experiments previously published*, except contactless (as opposed to contact) conductivity detection was used.



Figure 1. Planar Headstage on 1/16th inch tubing after the column

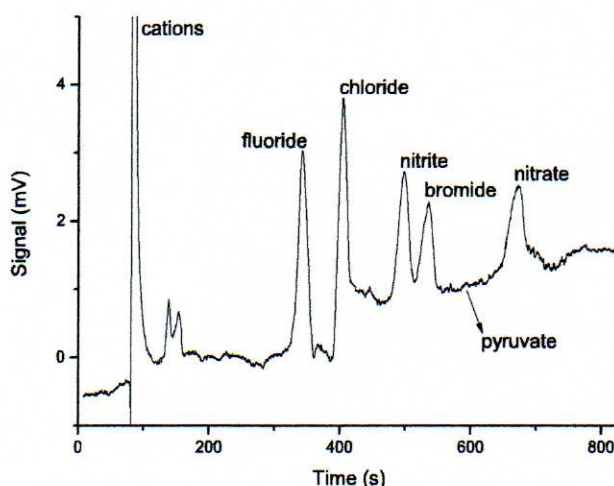


Figure 2. Chromatogram of 1mM anions

Conditions

Sample: A solution of 1 mM fluoride, chloride, nitrate, bromide, pyruvate and nitrate, dissolved in water.

Buffer: 98.75% water, 1.25% methanol, 2.5mM tetrabutylammonium hydroxide (TBAOH) and 5mM 3-(N-morpholino)-propane sulfonic acid (MOPS)

Separation column: Macherey-Nagel, Nucleosil 120.5 C18, part 720041.46

C4D: frequency = 800 kHz
amplitude = 80 A
headstage gain OFF

Data recording:
lowpass Filter = 10 Hz
range = 20 mV
sampling rate = 1000 data points per second

* Separation of anions by ion-interaction chromatography with a novel cationic/zwitterionic eluent
Zhu Yan, Ling Yanyan, James S. Fritz, Paul R. Haddad; Journal of Chromatography A, 1020 (2003) 259-264