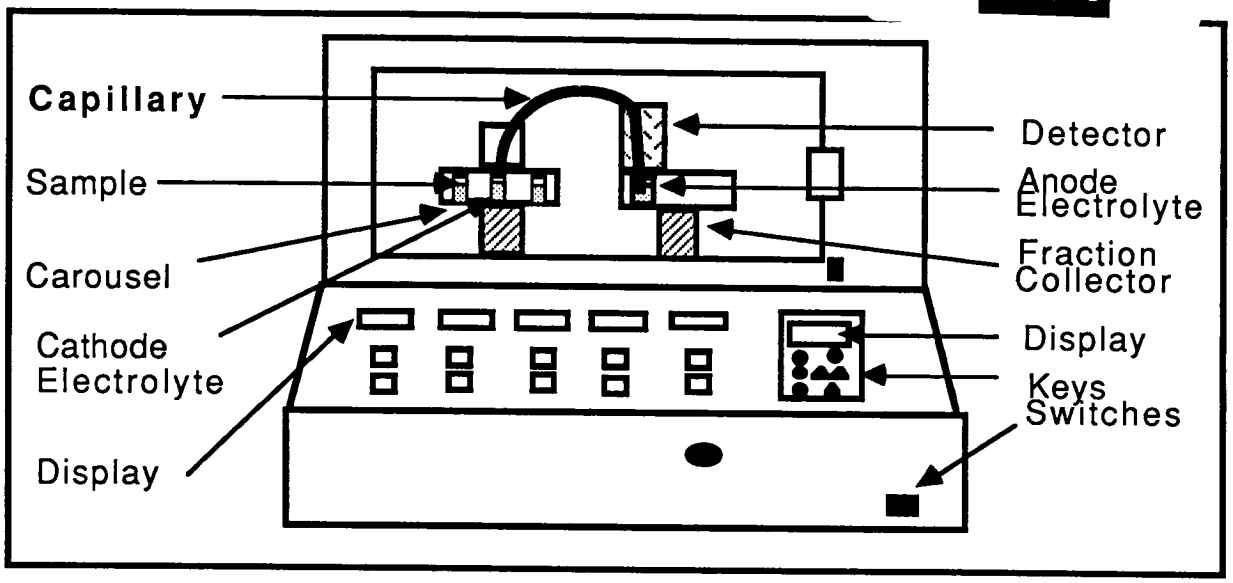
WATERS ION ANALYSIS METHOD

Inorganic CE Method - General Anions
High Mobility Electrolyte : Chromate

Method # N-601

94-1171

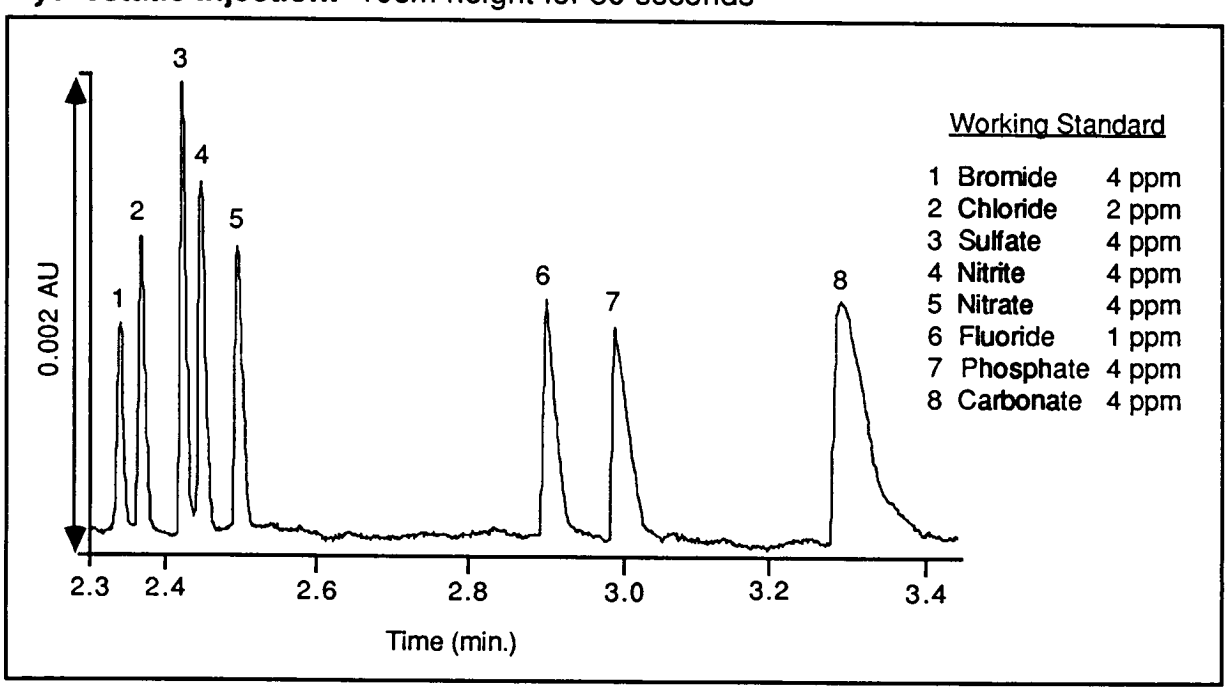
INSTRUMENTATION



CONDITIONS

Instrument: Quanta™ 4000
Electrolyte: Chromate with OFM™ Anion-BT Chemistry (Patent Applied For)
Capillary: Fused Silica (60cm X 75µm)
Power Supply: Negative Voltage
Applied Voltage: 20 KV
Current: 16 µAmp
Hydrostatic Injection: 10cm height for 30 seconds

Detection: UV at 254nm (Hg lamp)
Range: 0.002 AU
Detector Polarity: negative
Temperature: Ambient
Data: 820 Data System
Time Constant: 0.1 seconds
Sample Rate: 20 points/second



ELECTROLYTE PREPARATION

The working electrolyte is prepared by mixing electro-osmotic flow modifier (OFM™ Anion-BT) with electrolyte concentrate.

I. High Mobility Electrolyte Concentrate (Chromate)

To a 1-liter volumetric flask add:

~500 ml Milli-Q water
23.41g of Na_2CrO_4 tetrahydrate (Mallinckrodt AR grade)
68 ml of 10 mN sulfuric acid. [The 10 mN sulfuric acid is prepared by placing 560 microliters of sulfuric acid (Ultrex grade, JT Baker) into a clean 1 liter flask and filling to the mark.]

Fill the flask to the mark with Milli-Q water and mix thoroughly. This concentrate may be stored in volumetric or sealed glass container for up to 1 year. The 1 liter concentrate makes 20 liters of electrolyte.

II. Working Electrolyte (Chromate + OFM Anion-BT) (pH 8.0)

To a 200 milliliter volumetric flask add:

5 ml of Waters OFM Anion-BT solution

Rinse the pipet or graduated cylinder twice with Milli-Q water, adding the rinses to the volumetric, then add:

10 ml of electrolyte concentrate (chromate)

Fill the flask to the mark with Milli-Q water, mix thoroughly and filter through a 0.45µm Millipore membrane (HA). This results in a chromate electrolyte of pH 8.
Prepare fresh carrier electrolyte daily.

STANDARD PREPARATION

I. Concentrated Standard

1000 ppm F^-	0.221 g NaF (ACS) +/- 0.001 g
2000 ppm Cl^-	0.329 g NaCl (ACS) +/- 0.001 g
4000 ppm NO_2^-	0.600 g $NaNO_2$ (ACS) +/- 0.001 g
4000 ppm Br^-	0.596 g KBr (ACS) +/- 0.001 g
4000 ppm NO_3^-	0.548 g $NaNO_3$ (ACS) +/- 0.001 g
4000 ppm HPO_4^{2-}	0.569 g KH_2PO_4 (ACS) +/- 0.001 g
4000 ppm SO_4^{2-}	0.592 g Na_2SO_4 (ACS) +/- 0.001 g
4000 ppm HCO_3^-	0.707 g Na_2CO_3 (ACS) +/- 0.001 g

Prepare separate standard concentrates by diluting each of the above to 100 ml with Milli-Q water

II. Working Standard

Pipet 100 µl of each standard concentrate into a 100-ml volumetric flask and dilute with Milli-Q water to result in the working standard (see front page). Prepare fresh working standard weekly. **Always include Bromide and Phosphate in the working standard.**

DETECTION LIMITS:
2 x Baseline Noise

Analyte	PPB
Br^-	380.
Cl^-	145.
SO_4^{2-}	172.
NO_2^-	325.
NO_3^-	350.
F^-	89.
HPO_4^{2-}	375.
CO_3^{2-}	360.

COMMENTS:

1. Always use 4 ml vials filled to the neck with electolyte.

2. Always use fresh electrolyte with each carousel-load of samples.

3. If fluoride and phosphate co-elute for a given sample, change the electrolyte in the corresponding vial and rerun the sample.

5. For further information or questions, contact your Waters Inorganic Analysis Specialist or the Inorganic Analysis Group in Milford, MA.