Waters Application Notebook

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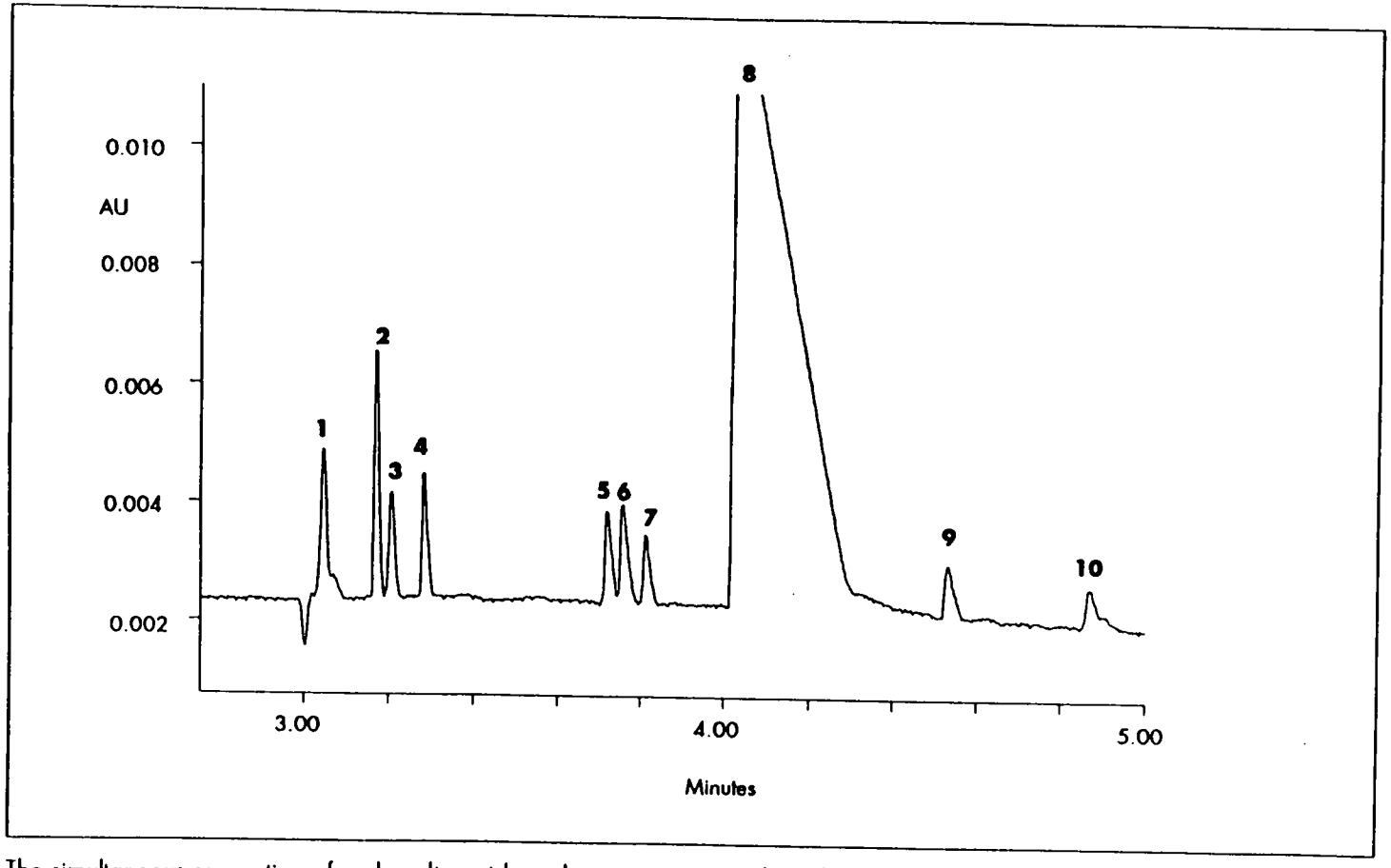
Trace Anions in a Water Sample From a Nuclear Power Plant



The simultaneous separation of carboxylic acids and inorganic anions has eluded ion chromatographers for a long time. Capillary ion analysis separates organic and inorganic anions in less than five minutes.

Conditions:

Electrolyte: 10 mM chromate, 0.5 mM CIA PAK OFM Anion BT, pH 8.0

Capillary: Waters Accusep™ 75 µm x 60 cm fused silica

Potential: - 15 KV

Detection: Indirect at 254 nm

Injection: 45 sec at 5 KV, 75 µM of octane sulfonate added to the sample.

Sample: 2 mL of secondary circuit water from a nuclear power plant containing 3 ppm of morpholine and anion levels between 3.8 and 10 ppb. The water sample was alkaline, pH 9.

1.	Chloride	7.0 ppb
2.	Sulfate	9.6 ppb
3.	Nitrate	12.0 ppb
4.	Oxalate	10.0 ppb
5.	Fluoride	3.8 ppb
6.	Formate	10.0 ppb
7.	Phosphate	6.2 ppb
8.	Carbonate	not quantitated
9.	Acetate	10.0 ppb
10.	Propionate	10.0 ppb