

GLI Method Summary

Determination of Cations by Suppressed Ion Chromatography

Governing SOP: ME-4D Rev 1
Effective Date: 05/14/04

Analyte: NH₄ (Ammonium)
Superseded: ME-4D Rev 0

Range: ppm - %

Instrument	Dionex Model DX120 or Dionex Model DX 500 Ion Chromatograph
Preparation	For aqueous samples: Direct injection, dilute as needed. For soluble solids: Dissolve in appropriate water based solvent and inject. Insoluble solids may be extracted with water or dilute acid.
Calibration	Dilute working standards are prepared from commercial stock solutions. The range of calibration is based on expected levels of analyte in the sample.
Sample Intro	Auto injection (Hitachi Model AS-200o or L-7200)
Determination	Conductivity detection
Precision & Accuracy Ammonium	RSD 4.02%
Quantitation Limit	Practical quantitation limit in solution is 100 µg/L. Upper limit may be extended by dilution of sample preparation.
Interferences	Substances with retention times that overlap those of ammonium. High levels of sodium are known to cause interferences.
Calculations	External standard, linear regression. $ppm = \frac{(\mu g / mL \text{ in solution}) \times (prep \text{ vol in mL}) \times (dilution \text{ factor})}{(mass \text{ of sample in grams})}$

References

Sawicki, et.al., *Ion Chromatographic Analysis*, Ann Arbor Science, 1978, p. 149-67.

US EPA Method 300.0, "The Determination of Inorganic Anions in Water by Ion Chromatography", EPA-600/4-84-017, March 1984.