

## Ion Chromatography



The ion chromatography is used for the analysis of aqueous samples in parts-per-million (ppm) quantities of common anions such as fluoride, chloride, nitrite, nitrate, and sulfate and common cations like lithium, sodium, ammonium, and potassium using conductivity detectors. The chromatography also has the capability to analyze aqueous samples for parts-per-billion (ppb) quantities of hydrazine, monomethylhydrazine (MMH), and unsymmetrical dimethylhydrazine (UDMH).

Ion chromatography is a form of liquid chromatography that uses ion-exchange resins to separate atomic or molecular ions based on their interaction with the resins. Its greatest utility is for the analysis of anions for which there are no other rapid analytical methods. It is also commonly used for cations and biochemical species such as amino acids and proteins. Most ion-exchange separations are done with pumps and metal columns.

Ion chromatography is the only technique that can provide quantitative analysis of anions at the ppb level. Aqueous solutions, which may require filtration, dilution, and/or cleaning to remove interferences, are required for analysis. Solid samples are extracted with water to remove the ions from the sample surface. Organic liquids may also be extracted with water to obtain an aqueous solution of the ions for analysis. The minimum sample required is approximately 10 mL for liquids and 2-3 cm<sup>2</sup> for solids.

| Ion Chromatography Models | Detectors    | Location |
|---------------------------|--------------|----------|
| Metrohm (792 Basic Ic)    | Conductivity | K314     |

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