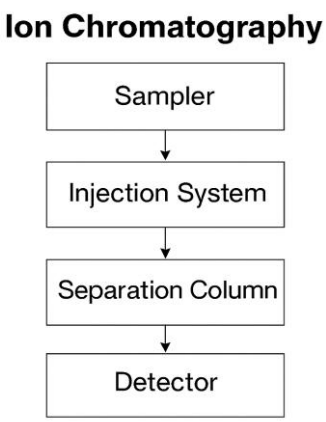
Ionisation Chromatography (Metrohm-940)

An Advanced Instrument for the analysis of ionic species in samples.

INTRODUCTION:

Ionisation Chromatography (IC) is an essential analytical technique used to separate, identify, and quantify components in a liquid mixture. It works on the principle of differential partitioning between a mobile phase (liquid solvent) and a stationary phase (usually a packed column). As the sample passes through the column, its components interact differently with the stationary phase, causing them to elute at different times - a process known as retention.

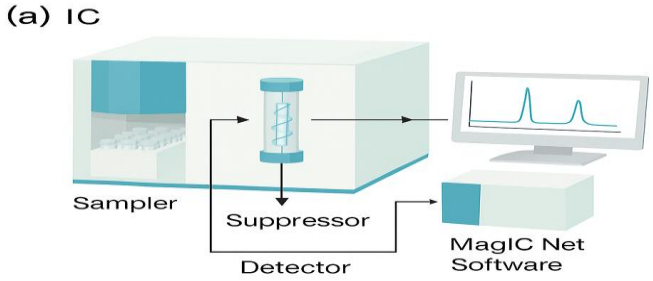


OBJECTIVES:

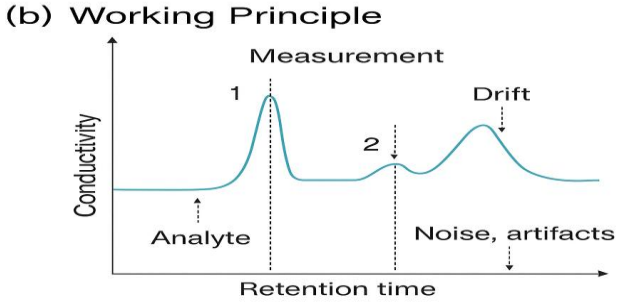
- **Separation and identification of ionic species in samples**
- **Quantitative analysis of cations and anions at trace levels**
- **Monitoring environmental and industrial water quality**
- **Supporting precipitation chemistry analysis (e.g., acid rain studies)**
- **Quality control and detection of ionic contaminants in various samples**

DATA OUTPUT:

- **Chromatogram**
- **Retention time of analytes**
- **Peak area and peak height**
- **Ion concentrations (e.g., mg/L or ppm)**
- **Calibration curve and R^2 value**
- **Report in PDF/Excel format**



MEASUREMENT AND WORKING PRINCIPLE:



Ion Chromatography works on the principle of ion exchange, where ions in a sample are separated based on their interaction with a stationary ion-exchange resin. A liquid mobile phase carries the sample through the column, where different ions elute at different times (retention times). These are detected, usually by a conductivity detector. The detector signal is recorded as a chromatogram, where peak areas correlate with ion concentration. Measurement is precise, sensitive, and suitable for both major and trace-level analysis.

KEY FEATURES:

- ✓ **Full automation for sampling, calibration, and system monitoring**
- ✓ **User-friendly MagIC Net software for control, data analysis, and reporting**
- ✓ **Simultaneous multi-channel and multi-method operation**
- ✓ **High sensitivity for trace ion detection with excellent precision**
- ✓ **Inline sample preparation options like filtration and dilution**
- ✓ **Compliance with regulatory standards such as GLP and FDA**

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