

ANALYTICAL CHEMISTRY SUPPORT SERVICES

For scientific and engineering programs



The Analytical Chemistry Laboratory (ACL) provides a broad range of analytical chemistry support services to the scientific and engineering programs at Argonne National Laboratory. We also provide specialized analysis for government, academic, and industrial organizations, including other national laboratories, as well as support to QA/QC programs and audits.

ANALYTICAL SERVICES AND RESEARCH

We handle a wide range of analytical problems, from routine standard analyses to unique problems that require significant development of methods and techniques.

INORGANIC ANALYSIS

Wet-chemical and instrumental methods for elemental, compositional and isotopic analysis of solid and liquid samples. Analysis can be done on radioactive samples. We also have unique, high-precision methods available for analysis by

Inductively coupled plasma/optical emission spectrometry (ICP/OES) and Inductively coupled plasma/mass spectrometry (ICP/MS).

- ICP/MS with dynamic reaction cell (DRC)
- Ion chromatography (IC)
- Carbon, sulfur, oxygen and nitrogen LECO analysis
- Autotitration: acid-base, redox, and Karl Fischer water
- pH and fluoride via ion-selective electrodes
- Selected industrial hygiene and environmental parameters

RECENT PROJECTS

- On-line monitoring of molten salts via LIBS/LAMIS
- Surface marking techniques for intentional forensics
- Analysis of short-lived isotopes for medical isotope development
- Development of novel separations and target purification for accelerator production of radionuclides
- Development of methods for analysis of oxygen in fluoride molten salts
- Development of a high-precision ICP-QMS method
- Development of dissolution, separation, and ICP-MS protocols for nuclear forensics





RADIOCHEMICAL ANALYSIS

Nuclear counting and separations analysis available over a wide range of sample types, from low radioactivity environmental samples to samples with high radioactivity requiring containment.

- Gamma spectrometry
- Alpha spectrometry
- Gross alpha and beta analysis by liquid scintillation
- Liquid scintillation counting
- K_d analysis of soil and rock
- Chemical conversions and separations involving radionuclides

VIBRATIONAL SPECTROSCOPY

- Raman spectroscopy
- FTIR spectroscopy

MICROSCOPY

- Scanning electron microscope (SEM) with energy dispersive spectroscopy (EDS)
- Raman microspectroscopy

CONTACT

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