

Trace Inorganic Analyses



RTI International provides research and analytical support for the measurement and analyses of trace elements and metallic species in biological and environmental matrices. Our clients include state and federal agencies, as well as pharmaceutical and commercial clients. RTI also collaborates with universities in support of health research studies. With a staff of experienced scientists and state-of-the-art laboratories and equipment, RTI conducts quality analyses that yield reliable results and inspire full customer confidence.

Strengths

- Creative and innovative approaches to complex client needs
- Attention to client focus
- Servicing diverse research markets
- Experienced, trained professionals
- Extensive state-of-the-art instrumentation, including
 - Sector-field (high-resolution) inductively coupled plasma mass spectrometry (SF-ICP-MS)
 - Quadrupole inductively coupled plasma mass spectrometry (Q-ICP-MS): two systems
 - Energy dispersive X-Ray fluorescence (EDXRF): four systems
 - Inductively coupled plasma optical emission spectrometry (ICP-OES): three systems
 - Ultra-performance and high-performance liquid chromatographs (UPLC, HPLC; when coupled with ICP-MS and ICP-OES systems, used for speciation of As, Cr, Hg, Mg, Si, Sn, and V).

Case Study in GLP Methods Development

Client Problem: A major pharmaceutical company needed an ultra-trace measurement of a rare earth element in human clinical samples. Such measurements required compliance with U.S. Food and Drug Administration's Good Laboratory Practices.

RTI Solution: Within 30 days, RTI developed and validated an accurate, rapid, sensitive method for the client and subsequently analyzed over 20,000 clinical samples.



Case Study in Hexavalent Chromium Studies

Client Problem: Needed to identify problematic elemental characteristics under real-life conditions.

RTI Solution: RTI conducted a three-part study for the California Air Resources Board resulting in the development of an impinger/ion chromatographic sampling/analytical method for hexavalent chromium, or Cr(VI), laboratory determination of Cr(VI) half life studies, and determination of Cr(VI) half life under Southern California field conditions. Half life results (in hours) between simulated and actual conditions were within 10% agreement. The ion chromatographic method studied by RTI (1988) was ultimately established as the reference Cr(VI) method by both the California Air Resources Board and the U.S. Environmental Protection Agency.

Case Study in Sample Media Diversity

Client Problem: Needed low-level elemental determinations in tissues in addition to the more common soil and water matrices.

RTI Solution: RTI developed numerous analytical and speciation methods for trace elements in biological and environmental media over a 19-year period for the U.S. Fish and Wildlife Service. Determinations of up to 40 elements and elemental compounds were performed on over 75,000 animal and plant tissues, soil and sediments, and water samples.

More Information

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