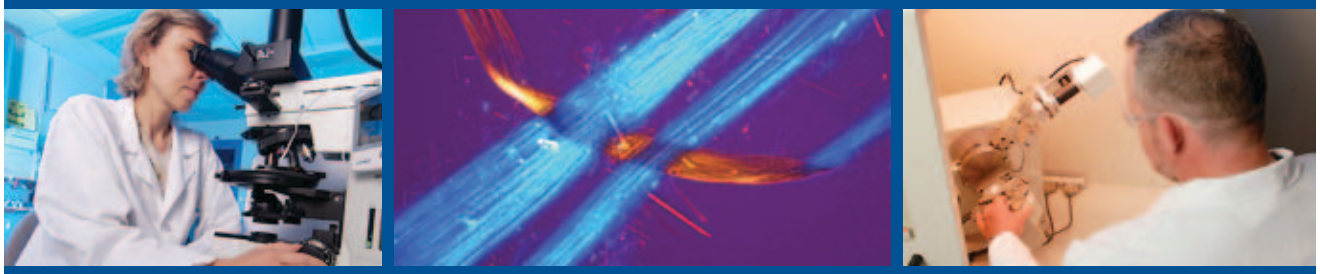


# Microanalytical Sciences



RTI International provides technical support in the areas of microanalysis, microscopy, and proficiency testing, and applied research in fibrous and particulate materials, to a variety of commercial clients and state and federal agencies. With a staff of experienced scientists and state-of-the-art laboratories and equipment, we can expertly tailor our approach to each client's needs.

## Strengths

- Microscopy and microanalysis, including x-ray diffraction
- Gravimetric mass determination of particulates in air
- Logistical support of field monitoring programs
- Expert technical oversight of airborne particle research
- Laboratory proficiency testing programs
- Methods development, evaluation, and quality assurance
- Specialty reference materials and calibration standards

## Pharmaceutical Problem-Solving

**Client Problem:** A pharmaceutical client had visible contamination in a parenteral drug sealed in a glass vial.

**RTI Solution:** Analysis by scanning electron microscopy revealed particles indicative of metal wear. X-ray spectroscopy analysis showed that the particles had an elemental content of iron, chromium, nickel, and molybdenum—which is typical of stainless steel 316.

With this information, the company was able to locate a potential source of the metal filings within their vial washing system. Samples from that material were matched, and the company was able to return quickly to contamination-free production.

## Solving Problems to Support Client Success

RTI's Microanalytical Sciences Program has earned a reputation for tackling the most difficult problems for clients in government, industry, and academia. Our interdisciplinary team of scientists has the unique advantage of leveraging any of the Institute's expertise areas to assist in project design and problem-solving.



For nearly 30 years, RTI has administered the three major national asbestos proficiency testing programs. We are accredited by the American Association for Laboratory Accreditation (A2LA) as a proficiency testing provider for asbestos and are uniquely qualified to provide asbestos quality assurance support, performance evaluation samples, and double-blind laboratory proficiency tests.

## Toxicological Problem-Solving

**Client Problem:** A client needed a toxicological investigation of an inorganic industrial chemical to determine its purity and to detect any significant structural changes in the material over time.

**RTI Solution:** RTI conducted the toxicological investigation and characterized the composition and internal atomic structure of this proprietary compound using numerous analytical methods, including x-ray diffraction.

With this information, RTI established the identity of the test compound, identified major impurities, and determined stability at ambient and freezer temperatures to ensure that this material was stable and that no degradation had occurred in frozen storage over time.



## Environmental Problem-Solving

**Client Problem:** An engineering firm consulting on construction of a power plant needed to assess existing air quality, compile data for construction permits, and address unexpected pollutants during the monitoring period.

**RTI Solution:** RTI provided controlled sample handling, reliable determination of mass concentration, and an integrated analytical approach, including particle characterization and elemental analysis.

With this information, the client was able to assess existing air quality to support the permit application and investigate roadside applications of weed-killers that contributed to unexpected spikes in some compounds.

For over 20 years, RTI has provided logistical and laboratory support to air monitoring programs and emissions control projects, including environmentally controlled mass measurements and support of chemical and microscopy analyses. For regulatory, environmental, manufacturing, energy, and agrichemical clients, RTI uses optical microscopy, electron microscopy (scanning and transmission), x-ray diffraction, controlled environment gravimetry, and optical carbon analysis for particle characterization and air quality assessment.

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## More Information

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