

## Metals Pb Program Summary

Childhood lead exposure can hinder both mental and motor skill development and is especially dangerous for children under 6 years of age. Though the elimination of lead from gasoline and from solder used in association with copper plumbing has reduced blood lead levels in U.S. children, lead in paint, soil, and dust still pose a significant exposure risk for children living in older houses, which compose much of the housing stock in this country's major cities. In fact, the Centers for Disease Control and Prevention recently reported that no safe blood lead levels in children has been identified.

To reduce or eliminate the health risks posed by lead requires accurate and precise determination of lead in various media. Lead can be measured *in situ* using a number of techniques, such as portable X-ray fluorescence, and qualitative and quantitative field tests, and by laboratory methods, most of which are based on atomic spectroscopy. The accuracy and consistent application of these methods can only be assured through implementation of an adequate quality assurance/quality control (QA/QC) program.

The best way for an individual or organization to know that adequate analytical QA/QC is in place is to have a well-established, respected third-party accredit those performing the analysis. This is precisely what is being done through the U.S. Environmental Protection Agency/American Industrial Hygiene Association Laboratory Accreditation Programs, LLC (EPA/AIHA-LAP, LLC) Environmental Lead Laboratory Accreditation Program (ELLAP). Laboratory accreditation by the program is based upon two activities: proficiency testing (PT) program participation and on-site audits. A minimum level of quantitative capability needs to be demonstrated. To test this quantitative capability, the PT materials must meet well-defined standards of representativeness, homogeneity, and stability.

The Environmental Lead Proficiency Analytical Testing (ELPAT) Program, administered by AIHA Proficiency Analytical Testing (PAT) Programs, is designed to help organizations assess and improve analytical performance by providing test samples to organizations on a quarterly basis and evaluating the results. To meet the program's overall goal to keep workers, families, and communities healthy and safe, the AIHA PAT Programs has prioritized its needs for the ELPAT Program to ensure uninterrupted distribution of high-quality PT materials.

Based on 30 years of experience with the analysis of lead in all media, especially in paint, soil, and dust, RTI International (RTI) is uniquely suited to prepare the highest-quality PT materials for the ELPAT Program. For the past 25 years, RTI has prepared PT materials for the ELPAT Program, and we offer a highly qualified staff with over 100 years of combined PT experience, as well as the appropriate equipment, analytical instrumentation, and facilities to continue conducting the program, including an extensive "real-world" Lead Materials Repository (e.g., paint, soil, and dust) in place to more than fulfill all of AIHA PAT Programs' needs.

In addition to successfully conducting this work for the ELPAT Program, RTI has provided support to similar projects that focus on the reduction of childhood lead poisoning. The extensive experience in the development of PT and method evaluation materials used for AIHA PAT Programs' ELPAT Program has also been used to support development and evaluation of sampling and analysis methods for lead for the EPA and the U.S. Department of Housing and Urban Development (HUD). RTI supplies raw

materials to the National Institute of Standards and Technology (NIST) for the production of lead-in-paint and lead-in-dust Standard Reference Materials (SRMs), and produces composite lead wipes for the EPA National Lead Laboratory Accreditation Program (NLLAP) Composite Dust Wipe Pilot Study. In addition RTI has collected and maintains more than 3,000 pounds of paint samples for the preparation of three lead-in-paint SRMs, and more than 1,000 pounds of house dust for the preparation of two lead-in-dust SRMs, both for NIST.

RTI has the experience and technical capability to solve unexpected problems with certain PT materials, develop new PT materials needed by PT Providers, and provide unique services, such as the preparation and submission of double-blind performance evaluation samples to laboratories. To this end, RTI has prepared a large number of paint test materials that come closer to simulating real-world paints than have ever before been produced. These materials, which were developed under the auspices of the EPA and intended for use in PT programs, vary in substrate, type of lead pigment, presence of potentially interfering colors, presence of potentially interfering metals, and layers of lead-containing and lead-free paint.

RTI continues to be recognized as a leader in lead method development by authoring a federal equivalency method that has subsequently been used in a new federal reference method for lead in air. RTI has also developed a field method for measuring lead extracted from paint.