

Paracel's Quality System

Paracel Laboratories Ltd. understands our clients' greatest challenge when choosing a laboratory is based upon their requirement for reliable, traceable and legally defensible data. Paracel's Quality System provides a mechanism for monitoring the overall performance of the analytical laboratory which completely satisfies these requirements.

Paracel's Quality Management System is accredited in accordance with the **International Standard ISO/IEC 17025:2005**. Laboratories fulfilling the requirements of ISO/IEC 17025:2005 comply, for testing activities, with the relevant requirements and principles of ISO 9001:2002, including those of the model described in ISO 9002 when they are acting as suppliers producing test results. The management and staff of Paracel are committed to good professional practice, quality of its service and compliance with the quality objectives of ISO/IEC 17025:2005.

Accreditation, Licenses & Audits

Paracel is accredited by several associations. These associations provide regularly scheduled audits of our Quality System

Paracel holds accreditation with the following:

- CALA – ISO/IEC 17025:2005; first laboratory in Canada to be accredited by CALA for mold and fungi
- NIST/NVLAP
- MOE Drinking Water License

Paracel also frequently participates in less formal audits and laboratory inspections including:

- Biennial audits by the Canadian Association for Laboratory Accreditation (CALA)
- Biennial audits by the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation (NIST/NVLAP)
- Private sector environmental consulting companies
- Ontario Ministry of the Environment (MOE) – MISA, O.Reg. 153/04 as amended 179/11, ODSWA
- Environment Canada – ongoing research projects
- Public Works and Government Services – IAQ microbial analyses

A copy of Paracel's CALA Scope of Accredited Tests and Registered Proficiency Tests can be downloaded at <http://www.cala.ca/scopes/1262.pdf>. Copies of Paracel's NIST/NVLAP Scopes can be downloaded from <http://ts.nist.gov/standards/scopes/2008120.htm> (Ottawa) and <http://ts.nist.gov/standards/scopes/2008630.htm> (Mississauga). Audits of Paracel's Quality System are available for review at any time by our clients.

Proficiency Testing

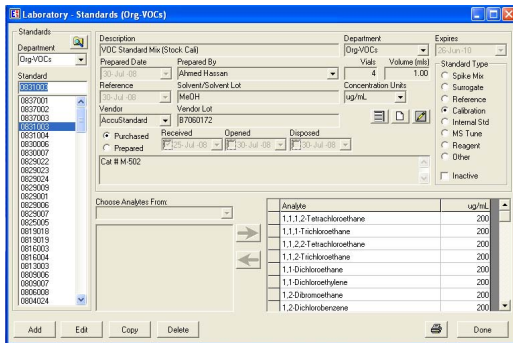
Paracel has external proficiency testing (PT) programs in place for all parameters in our scope, including:

- CALA – since 1992
- NIST/NVLAP
- American Industrial Hygiene Association (AIHA) Environmental Microbiology Proficiency Testing (EMPAT) Program – since 1999, one of its longest standing participants

In addition to the external PT programs, Paracel also maintains an internal PT program for our analysts to determine competency prior to performing any analysis and annually monitors analyst proficiency performance.



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Data Management

Element, Paracel's Laboratory Information Management System (LIMS), is used to manage all the data generated by the laboratory. Element helps to limit transcription errors, document QC data points and provide real time QC information. Samples are fully traceable throughout the entire analytical process by Element. Information pertaining to the standards and reagents used to analyse each batch of samples are entered into Element, enabling Paracel to track these reagents from time of purchase to time of analysis. This system easily allows the tracking of your sample submissions and the associated QC.

Element Reagent Login and Tracking Screen

Analysis and Reporting

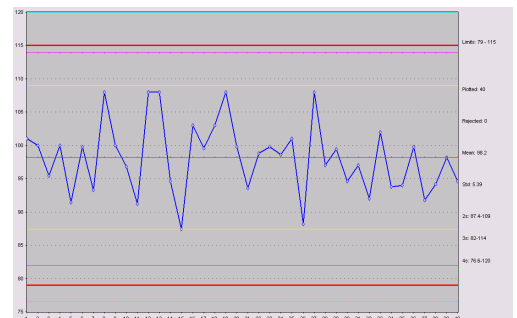
Each sample and analytical run on our state of the art instrumentation is subjected to strict QA/QC procedures. A summary of the protocol for sample handling and analysis for routine sample submissions, as a minimum, is as follows:

- Sample containers provided to our clients are pre-cleaned to EPA specifications
- Travel and field blanks are provided upon request for field QC samples
- All standards and reagents utilized by the laboratory are purchased from ISO accredited suppliers and the specific information pertaining to each reagent is entered into our LIMS system
- Strict adherence to method specific limits and SOPs
- All instruments are calibrated using standards prepared from traceable, certified stock standards and verified using traceable certified standard reference materials
- QC samples are analysed with each analytical run, including method blanks, duplicates and matrix spikes
- All QC data is analysed, logged and charted
- Data is reviewed by the Laboratory Manager prior to reporting
- Analytical and QC data are provided to clients in PDF format reports with electronic signatures

QA/QC Officer

The QA/QC Officer is responsible for the overall design and implementation of Paracel's Quality System and laboratory QA/QC and routinely performs internal audits of the Quality System to ensure all analytical testing is performed in accordance with ISO/IEC 17025:2005 requirements. In regards to analytical and QC data, the Officer's responsibilities include:

- Performs trend analysis by examination of control charts and pertinent QC data for drift and other irregularities over time
- Immediate involvement if issues with data are encountered
- Completes investigations into client inquiries and provides all findings to the client



Laboratory Control Spike Control Chart

Paracel has incorporated these procedures for analysis, reporting and investigation into our Quality System to ensure our clients are receiving not only reliable, traceable and legally defensible data but also have an avenue available to them for investigations into data integrity. The management and staff at Paracel are committed to providing our clients with data they can rely on.