



# rpc

SCIENCE & ENGINEERING

921 College Hill Rd. Fredericton, NB Canada E3B 6Z9  
150 Lutz St. Moncton, NB Canada E1C 5E9

## Organometallic Compounds by GC/AED

**O**rganic compounds containing elements such as mercury, lead, tin and arsenic are collectively referred to as organometallics.

The impact of a metal on the environment can increase when it bonds to an organic molecule by forming compounds that are highly fat-soluble. The resulting organometallic compounds accumulate more readily in living organisms, and can be much more toxic than metals in their inorganic forms (such as salts and oxides). These compounds are utilized in many industrial applications, and are used in biocides (e.g. marine anti-foulants, fungicides, insecticides) and as polymer stabilizers.

RPC's Environmental Services laboratory utilizes atomic emission detection (AED) for the analysis of soil, sediment, water, porewater, wastewater, effluent, and plant & animal tissue for organometallic residues.

### Applications

In addition to the analysis of specific organometallics, GC/AED can also be used to quickly and cost-effectively screen samples for potential contamination with other classes of compounds including pesticides and explosives. Areas where GC/AED is particularly useful in assessing types and degree of contamination include the following:

- Dumpsites and landfills
- Wood treatment plants
- Military bases
- Thermal power plants
- Pulp and paper mills
- Petroleum refineries
- Commercial harbours
- Sites with multi-contaminant potential

Offering the advantage of high specificity for the elements of interest, GC/AED can also be used to monitor for nitrogen, oxygen, phosphorus, sulfur, chlorine, and bromine containing compounds.

### Sampling and Analysis

Water samples for GC/AED should be taken in 1-L amber glass bottles fitted with PTFE-lined caps. Soil samples should be collected in 250-mL glass jars fitted with a PTFE-lined caps. For tissue samples, at least 50g should be collected in glass jars fitted with PTFE-lined caps.

Store all samples in the dark at 4°C, and submit to the laboratory for analysis as soon as possible after collection.

Samples undergo organic solvent extraction using a compound-specific chelating agent. Instrumental analysis is by gas chromatography/atomic emission (GC/AED) with confirmation by gas chromatography/mass spectrometry (GC/MS).

Reporting limits are in the low part-per-billion range.

### Contact

Josh Perry  
Client Service Representative  
Tel: 506.460.5765  
Fax: 506.452.1395  
Email: info@rpc.ca

RPC's Quality Management System is registered to ISO 9001:2015 standards.

