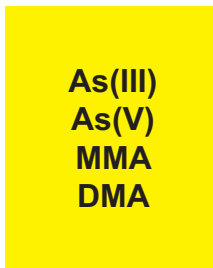
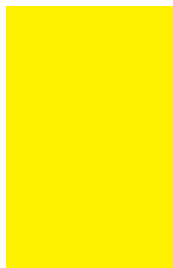


ARSENIC SPECIATION



As(III)
As(V)
MMA
DMA

LOW LEVEL DETECTION

Frontier GeoSciences Inc. (FGS) is an advanced research and analytical laboratory specializing in the determination and characterization of trace metals in the environment.

Our unique business structure allows us to employ inventive techniques and state-of-the-art instrumentation to provide our clients with customized methods to solve even their most complex analytical issues.

Since 1992, our expertise in the source, transportation, fate, and effect of trace metals in atmospheric, geological, biological, and hydrological cycles has produced innovative and reliable analytical methods now utilized around the world.

Industry and governments alike rely upon FGS to provide accurate and precise data so that they can make informed decisions about matters of serious human and economic consequence.



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As a result of perceivable human health risks, the US EPA considers arsenic to be a contaminant of primary concern (CPC) and sets the target concentration of arsenic in drinking water to $0\mu\text{g/L}$. Recently, the California Office of Environmental Health Hazard Assessment proposed a Public Health Goal of 4ng/L . Currently, as a compromise between technical feasibility, economic impact, analytical capabilities and toxicological concerns, the US EPA has lowered the drinking water criterion for arsenic to $10\mu\text{g/L}$. In addition, the new rule requires increased monitoring frequency, sampling at every point to the distribution system with arsenic concentrations reported to the nearest $1\mu\text{g/L}$. This confronts a large number of US utilities with the problem of having to remove arsenic from their source waters to meet this criterion and monitor the concentration of arsenic in their systems.

Until recently, the determination of total element concentrations was considered to be sufficient for clinical and environmental considerations. While the total concentration of an element still provides useful and essential scientific information, the concentration of individual species is generally more critical. For instance, the accurate determination of a toxic species is more relevant in the setting of environmental and toxicological studies than is the total elemental concentration.

This is especially true for arsenic since different arsenic containing compounds have varying toxicities. The inorganic species (As(III) and As(V)) are more toxic than pentavalent methylated arsenic compounds. The collection, treatment, and preservation of samples for quantitative analysis of arsenic species require careful consideration and planning separating speciation studies from "total" analyses. Frontier GeoSciences Inc. (FGS) has developed several analytical methods for the ultra-trace speciation analysis of arsenic in nearly all types of matrices.

Contact FGS today for our most current reporting limits and a description of the services we can offer your monitoring program.

