

MEASURING TRACE METALS IN SEAWATER



arsenic
mercury
lead
selenium



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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INNOVATIVE ANALYTICAL TECHNIQUES

From estuaries to the deep ocean, trace metals in seawater, although present at very low concentrations, have a profound influence on marine biogeochemistry and function as critical indicators of fundamental processes. However, given the low concentration of many of the analytes of interest and a generally poor understanding of speciation within the matrix, chemical analyses of seawater are uniquely difficult. Potential interferences from total dissolved solids (i.e. salts) often prevent accurate determinations of the ambient levels of trace metals, making most traditional EPA analytical methods ineffective.

Frontier GeoSciences (FGS) has developed several metal-specific analytical techniques that overcome many of problems associated with samples containing high levels of total dissolved solids. By removing the analyte of interest from the interfering matrix through verified sample preparation methods, FGS is capable of producing highly reliable data with very low detection limits for both total and dissolved fractions of the trace metals of interest.

Using a deliberate combination of oxidation, reduction, precipitation, extraction, chelation, filtration, and concentration techniques, trace metals can be precisely measured in seawater. Depending upon the analyte of interest, seawater is then analyzed using hydride generation-atomic fluorescence spectroscopy (HG-AFS), inductively coupled plasma-mass spectrometry (ICP-MS), or cold vapor-atomic fluorescence spectrometry (CV-AFS) producing very low detection limits.

Contact FGS today for our current reporting limits for trace metals in seawater and how we can help you accomplish your water monitoring goals.

Trace Metal	μL^{-1}
aluminum	10
antimony	0.03
arsenic	0.05
barium	5
beryllium	0.01
cadmium	0.005
chromium	0.08
cobalt	0.02
copper	0.02
iron	5
lead	0.01
mercury	0.00015
nickel	0.02
selenium	0.1
silver	0.005
thallium	0.01
tin	5
uranium	0.1
vanadium	0.01
zinc	0.08