

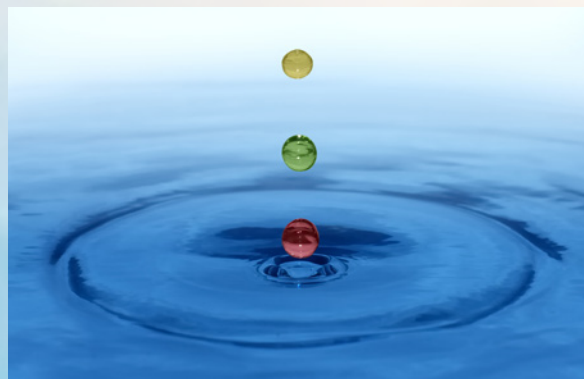
EPA Method 1632: Arsenic Speciation

For environmental remediation and monitoring projects that require the determination of various arsenic species, such as inorganic arsenic, arsenite, arsenate, monomethylarsonic acid, and dimethylarsinic acid, regulatory compliance often requires that analyses be performed by EPA Method 1632. As one of the laboratories initially contracted by the US EPA to contribute to the 1996 validation study of EPA Method 1632, Brooks Rand Labs has unparalleled experience providing analytical services for the determination and characterization of various arsenic species by this extremely sensitive method in a wide range of matrices.

Since the toxicity of arsenic found in water and food is highly contingent upon the particular species, EPA Method 1632 is frequently used to monitor ground water for total and dissolved fractions and biological tissues for inorganic forms. We have also developed a modification of the method suitable for soils and sediments, in order to accurately evaluate the bioavailability of various arsenic species.

A hydride generation – cryogenic trapping – atomic absorption spectrometry (HG-CT-AAS) method, EPA Method 1632 allows for ultra-low detection limits, as shown in the table below. By adjusting the pH during hydride generation, specific species

can be isolated and converted to their corresponding hydrides, which are then purged from the sample, cryogenically trapped, separated by their boiling points using gas chromatography, pyrolyzed and atomized in a quartz hydrogen flame atomizer, and detected using AAS.



The sample collection, preservation, and handling requirements for EPA Method 1632 are very specific and consultation with one of our representatives is highly recommended prior to beginning a project. To learn more about our methods and how they can assist in your environmental remediation or monitoring projects, contact us today.

Example Method Detection Limits

Species	Water ($\mu\text{g/L}$)	Biota (mg/kg)	Sediment (mg/kg)
Inorganic Arsenic	0.008	0.004	0.004
As(III)	0.008	0.003	0.040
As(V)	0.008	0.004	0.040
MMAs	0.010	0.003	0.004
DMAs	0.018	0.003	0.005

