Method Guide: 40728

# Method Guide - As in Seawater

Key Words

- Arsenic
- Atomic absorption
- Hydride generation
- HGAAS
- Seawater

## Principle:

The sample is pre-reduced using a mixture of potassium iodide and L-ascorbic acid. Arsenic is determined by Hydride Generation Atomic Absorption Spectrometry (HGAAS) using the VP100 Continuous Flow Vapour System.

## Reagents:

Hydrochloric acid (AnalaR grade, 50 % v/v)

Sodium borohydride solution (AnalaR grade, 0.5 % m/v in 0.5 % m/v sodium hydroxide)

Pre-reducing solution (AnalaR grade, 10% m/v potassium iodide + 10 % m/v L-ascorbic acid)

Arsenic master standard (1000 mg/L)

*Arsenic sub-stock standard solution (200 µg/L)*

Transfer 0.2 mL of arsenic master standard solution to a 1 L volumetric flask and add 10 mL of pre-reducing solution, then dilute to volume with deionised water.

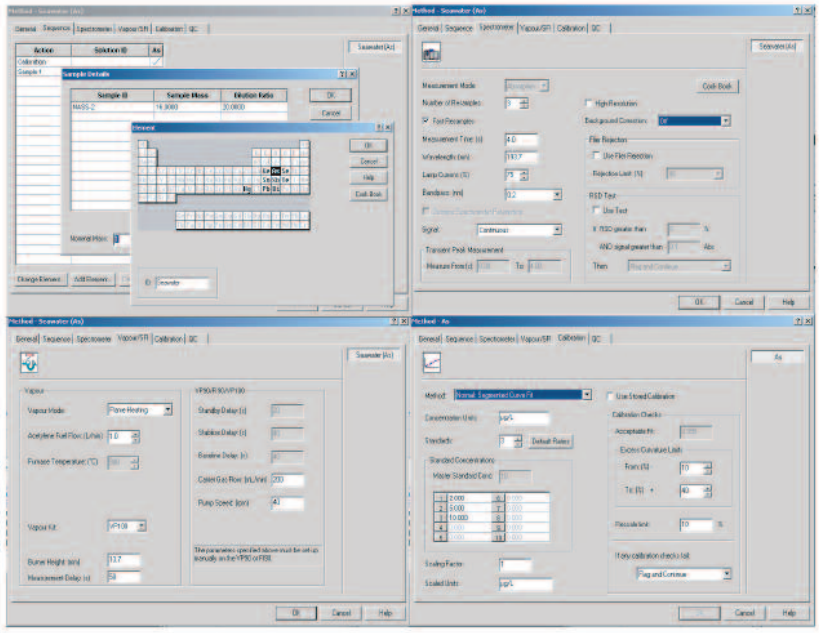
*Working standards*

Transfer 0, 1.0, 2.5 and 5.0 mL of the arsenic sub-stock standard solution into a series of 100 mL volumetric flasks. Add 10 mL of deionised water and 10 mL of hydrochloric acid to each flask and dilute to volume with deionised water. The working standards will contain 0, 2, 5 and 10 µg/L of arsenic.

## Sample Preparation:

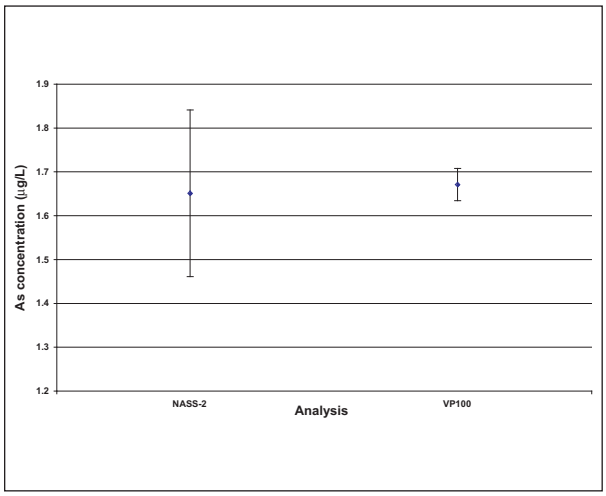
Into a test tube, add 16.0 mL of seawater sample, 2.0 mL of concentrated hydrochloric acid and 2.0 mL of the pre-reducing solution and mix thoroughly. Allow the mixture to stand for 1-2 hours at room temperature. The sample will then be ready for analysis.

## Instrument Parameters:



## Results:

NRCC sample number NASS-2, Near-shore seawater, was found to have an average arsenic content of 1.673 µg/L with a standard deviation of 0.04 µg/L. The certified result for this element is 1.65 µg/L, with a standard deviation of 0.19 µg/L.




*The method of sample treatment described in this publication should be performed only by a competent chemist or technician trained in the use of safe techniques in analytical chemistry. Users should acquaint themselves with particular hazards which may be incurred when toxic materials are being analysed and handled in the instruments, and the instrument must be used in accordance with the operating and safety instructions given in the Operators manual.*

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