United States
Environmental Protection
Agency

Environmental Monitoring and
Support Laboratory
Cincinnati OH 45268

Research and Development

EPA

Test Method

Sodium (Atomic Absorption, furnace technique)—Method 273.2

Optimum Concentration Range: 1-30 μg/L
Detection Limit: 0.2 μg/L
Preparation of Standard Solution

1. Stock solution: Prepare as described under "direct aspiration method."
2. Prepare dilutions of the stock solution to be used as calibration standards at the time of analysis. These solutions are also to be used for "standard additions."
3. The calibration standard should be diluted to contain 0.5% (v/v) HNO_3.

Sample Preservation

1. For sample handling and preservation, see part 4.1 of the Atomic Absorption Methods section of this manual.

Sample Preparation

1. Prepare as described under "direct aspiration method". Sample solutions for analysis should contain 0.5% (v/v) HNO_3.

Instrument Parameters (General)

1. Drying Time and Temp: 30 sec @ 125°C
2. Ashing Time and Temp: 30 sec @ 250°C
3. Atomizing Time and Temp: 10 sec @ 2000°C.
4. Purge Gas atmosphere: Argon
5. Wavelength: 589.6 nm
6. Other operating parameters should be set as specified by the particular instrument manufacturer.

Analysis Procedure

1. For the analysis procedure and the calculation, see "Furnace Procedure" 9.3 of the Atomic Absorption method section of this manual.

Notes

1. The above concentration values and instrument conditions are for a Perkin-Elmer HGA-2100, based on the use of a 20 μL injection, continuous flow purge gas and non-pyrolytic graphite. Smaller size furnace devices or those employing faster rates of atomization can be operated using lower atomization temperatures for shorter time periods than the above recommended settings.
2. Samples containing concentrations higher than those given in the optimum range should be analyzed by either the direct aspiration method (Method 273.1) or the flame photometric method (Std. Methods, 14th Edition, p. 250).
3. Nitrogen may also be used as the purge gas.
4. For every sample matrix analyzed, verification is necessary to determine that method of standard addition is not required (see 5.2.1 of the Atomic Absorption method section of this manual).
5. If method of standard addition is required, follow the procedure given earlier in 8.5 of the Atomic Absorption methos section of this manual.

6. Data to be entered into STORET must be reported as µg/L.

Precision and Accuracy

1. Precision and accuracy data are not available at this time.