METHOD #: 252.2 Approved for NPDES (Issued 1978)

TITLE: Osmium (AA, Furnace Technique)

ANALYTE: CAS # Os Osmium 7440-04-2

INSTRUMENTATION: AA

STORET No. Total Not Assigned

Optimum Concentration Range: 50-500 μg/L
Detection Limit: 20 μg/L

1.0 Preparation of Standard Solution

1.1 Stock solution: Prepare as described under "direct aspiration method".
1.2 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".
1.3 The calibration standard should be diluted to contain 1% (v/v) HNO_3.

2.0 Sample Preservation

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

3.0 Sample Preparation

3.1 Prepare as described under "direct aspiration method", except omit the addition of H_2SO_4 on the final volume adjustment. Sample solutions for analysis should contain 1% (v/v) HNO_3.

4.0 Instrument Parameters (General)

4.1 Drying Time and Temp: 30 sec-105°C.
4.2 Ashing Time and Temp: See NOTE 3 below.
4.3 Atomizing Time and Temp: 10 sec-2700°C.
4.4 Purge Gas Atmosphere: Argon
4.5 Wavelength: 290.9 nm
4.6 Other operating parameters should be set as specified by the particular instrument manufacturer.

5.0 Analysis Procedure

5.1 For the analysis procedure and the calculation, see "Furnace Procedure" part 9.3 of the Atomic Absorption Methods section of this manual.

6.0 Notes

6.1 Osmium tetroxide, the usual commercial form, is very volatile and highly toxic. Care should be exercised when working with this compound.

6.2 The above concentration values and instrument conditions are for a Perkin-Elmer HGA- 2100, based on the use of a 20 uL injection, continuous flow purge gas and non-pyrolytic graphite.

6.3 Since OsO_4 volatilizes near 150°C, the allowable ashing temperature must be verified in the sample matrix being analyzed.

6.4 The use of background correction is recommended.

6.5 For every sample matrix analyzed, verification is necessary to determine that method of standard addition is not required (see part 5.2.1 of the Atomic Absorption Methods section of this manual).

6.6 If method of standard addition is required, follow the procedure given earlier in part 8.5 of the Atomic Absorption Methods section of this manual.

7.0 Precision and Accuracy

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