METHOD #: 252.1
Approved for NPDES (Technical Revision 1978)

TITLE:
Osmium (AA, Direct Aspiration)

ANALYTE:
CAS # Os Osmium 7440-04-2

INSTRUMENTATION:
AA

STORET No.
Total Not Assigned

Optimum Concentration Range: 2-100 mg/L using a wavelength of 290.9 nm
Sensitivity: 1 mg/L
Detection Limit: 0.3 mg/L

1.0 Preparation of Standard Solution

1.1 Stock Solution: A standard AAS solution of osmium tetroxide, OsO₄, 1000 mg/L in aqueous matrix is available from Alfa Products, Beverly, Massachusetts 01915. Cat. #88084

1.2 Prepare dilutions of the stock solution to be used as calibration standards at the time of analysis. The calibration standards should be prepared to contain 1% (v/v) HNO₃ and 1% (v/v) H₂SO₄.

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 Transfer a representative 100 mL aliquot of the well mixed sample to a Griffin beaker and add 1 mL of conc. distilled HNO₃. Place the beaker on a steam bath or hot plate and warm for 15 minutes. Cool the beaker and filter to remove insoluble material that could clog the atomizer. Add 1 mL of conc. H₂SO₄ and adjust the volume back to 100 mL. The sample is now ready for analysis.

4.0 Instrumental Parameters (General)

4.1 Osmium hollow cathode lamp
4.2 Wavelength: 290.9 nm
4.3 Fuel: Acetylene
4.4 Oxidant: Nitrous oxide
4.5 Type of flame: Fuel rich

5.0 Analysis Procedure

5.1 For the analysis procedure and calculation, see "Direct Aspiration", part 9.1 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 For concentrations of osmium below 0.5 mg/L the furnace procedure, Method 252.2, is recommended.

7.0 Precision and Accuracy

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