

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, OsO_4 , 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) HNO_3 and 1% (v/v) H_2SO_4 .

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 HNO_3 . 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. H_2SO_4 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.