

**METHOD #:** 264.1 (Technical Revision 1978)  
**TITLE:** Rhenium (AA, Direct Aspiration)  
**ANALYTE:** CAS # Re Rhenium 7440-15-5  
**INSTRUMENTATION:** AA  
**STORET No.** Total Not Assigned  
**Optimum Concentration Range:** 50-1000 mg/L using a wavelength of 346.0 nm  
**Sensitivity:** 15 mg/L  
**Detection Limit:** 5 mg/L

### 1.0 Preparation of Standard Solution

- 1.1 Stock solution: Dissolve 1.554 g of potassium perrhenate,  $KReO_4$ , in 200 mL deionized water. Dilute to 1 liter with 1% (v/v)  $H_2SO_4$ . ( 1 mL = 1 mg Re).
- 1.2 A standard AAS solution of ammonium perrhenate,  $NH_4ReO_4$ , 1000 mg/L in aqueous matrix is available from Alfa Products, Beverly, Massachusetts 01915. Cat. #88089.
- 1.3 Prepare dilutions of the stock solution to be used as calibration standards at the time of analysis. The calibration standards should be prepared using 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 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 and filter to remove insoluble material that could clog the atomizer. Adjust the volume back to 100 mL. The sample is now ready for analysis.

### 4.0 Instrumental Parameters (General)

- 4.1 Rhenium hollow cathode lamp
- 4.2 Wavelength: 346.0 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 the calculation, see "direct aspiration" part 9.1 of the Atomic Absorption Methods section of this manual.

## 6.0 Notes

6.1 For concentrations of rhenium below 10 mg/L, the furnace procedure, Method 264.2, is recommended.

## 7.0 Precision and Accuracy

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