

**METHOD #:** 267.1 Approved for NPDES (Technical Revision 1978)  
**TITLE:** Ruthenium (AA, Direct Aspiration)  
**ANALYTE:** Ru Ruthenium  
**INSTRUMENTATION:** AA  
**STORET No.** Total Not Assigned  
**Optimum Concentration Range:** 1-50 mg/L using a wavelength of 349.9 nm  
**Sensitivity:** 0.5 mg/L  
**Detection Limit:** 0.2 mg/L

### 1.0 Preparation of Standard Solution

- 1.1 Stock Solution: Dissolve 0.2052 g of ruthenium chloride,  $\text{RuCl}_3$ , in a minimum volume of 20% (V/V) HCl and dilute to 100 mL with 20% HCl. (1 mL = 1 mg Ru).
- 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 using 1% (v/v) HCl.

### 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 2 mL of distilled ( 1:1 ) HCl. Place the beaker on a steam bath or hot plate and warm at 95°C for 15 minutes. Cool the beaker and filter the sample 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 Ruthenium hollow cathode lamp
- 4.2 Wavelength: 349.9 nm
- 4.3 Fuel: Acetylene
- 4.4 Oxidant: Air
- 4.5 Type of flame: Oxidizing

### 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 ruthenium below 0.5 mg/L, the furnace procedure, Method 267.2, is recommended.

7.0 Precision and Accuracy

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