

<b>METHOD #:</b> 282.1	Approved for NPDES (Editorial Revision 1978)
<b>TITLE:</b>	Tin (AA, Direct Aspiration)
<b>ANALYTE:</b>	CAS # Sn Tin 7440-31-5
<b>INSTRUMENTATION:</b>	AA
<b>STORET No.</b>	Total 01102 Dissolved 01100 Suspended 01101
<b>Optimum Concentration Range:</b>	10-300 mg/L using a wavelength of 286.3 nm
<b>Sensitivity:</b>	4 mg/L
<b>Detection Limit:</b>	0.8 mg/L

## 1.0 Preparation of Standard Solution

- 1.1 Stock Solution: Dissolve 1.000 g of tin metal (analytical reagent grade) in 100 mL of conc. HCl and dilute to 1 liter with deionized distilled water.  
1 mL = 1 mg Sn (1000 mg/L).
- 1.2 Prepare dilutions of the stock tin solution to be used as calibration standards at the time of analysis. The calibration standards should be prepared using the same type of acid and at the same concentration as will result in the sample to be analyzed either directly or after processing.

## 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 The procedures for preparation of the sample as given in parts 4.1.1 thru 4.1.4 of the Atomic Absorption Methods section of this manual have been found to be satisfactory.

## 4.0 Instrumental Parameters (General)

- 4.1 Tin hollow cathode lamp
- 4.2 Wavelength: 286.3 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 tin below 2 mg/L, the furnace procedure, Method 282.2, is recommended.
- 6.2 Data to be entered into STORET must be reported as  $\mu\text{g/L}$ .

## 7.0 Precision and Accuracy

- 7.1 In a single laboratory (EMSL), using a mixed industrial-domestic waste effluent spiked at concentrations of 4.0, 20 and 60 mg Sn/L, the standard deviations were  $\pm 0.25$ ,  $\pm 0.5$  and  $\pm 0.5$ , respectively. Recoveries at these levels were 96%, 101%, and 101%, respectively.