

## Source Test Method **ST-11**

### **MERCAPTANS**

Adopted (January 20, 1982)

**REF: Regulation 7-303**

#### **1. APPLICABILITY**

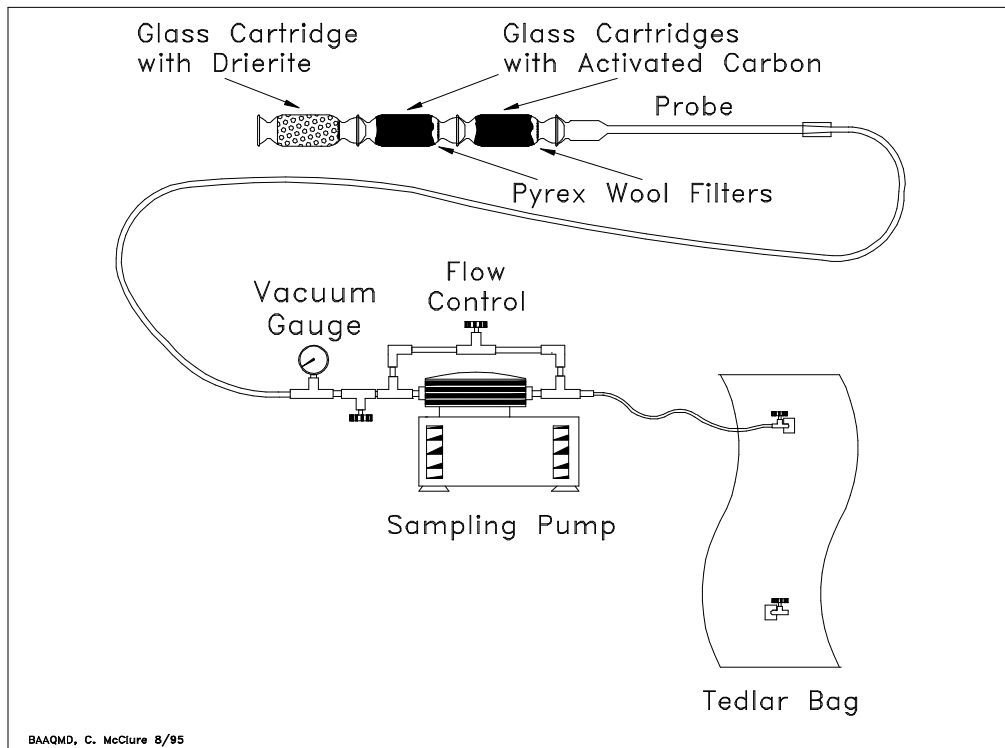
1.1 This method is used to determine emissions of mercaptans. It is applicable to the determination of compliance with Regulation 7-303.

#### **2. PRINCIPLE**

2.1 A sample is collected in a clean Tedlar bag. The sample is analyzed for mercaptans by chromatography with flame photometric detection.

**Figure 11-1**

**Mercaptan Purge Train**



#### **3. RANGE AND SENSITIVITY**

3.1 The minimum measurable concentration of mercaptans is 20 ppb.

- 3.2 Non-linear response by the flame photometric detector occurs for mercaptans concentrations over 10 ppm. However, appropriate dilution of the sample will allow concentrations up to 50 ppm to be analyzed.

#### 4. INTERFERENCES

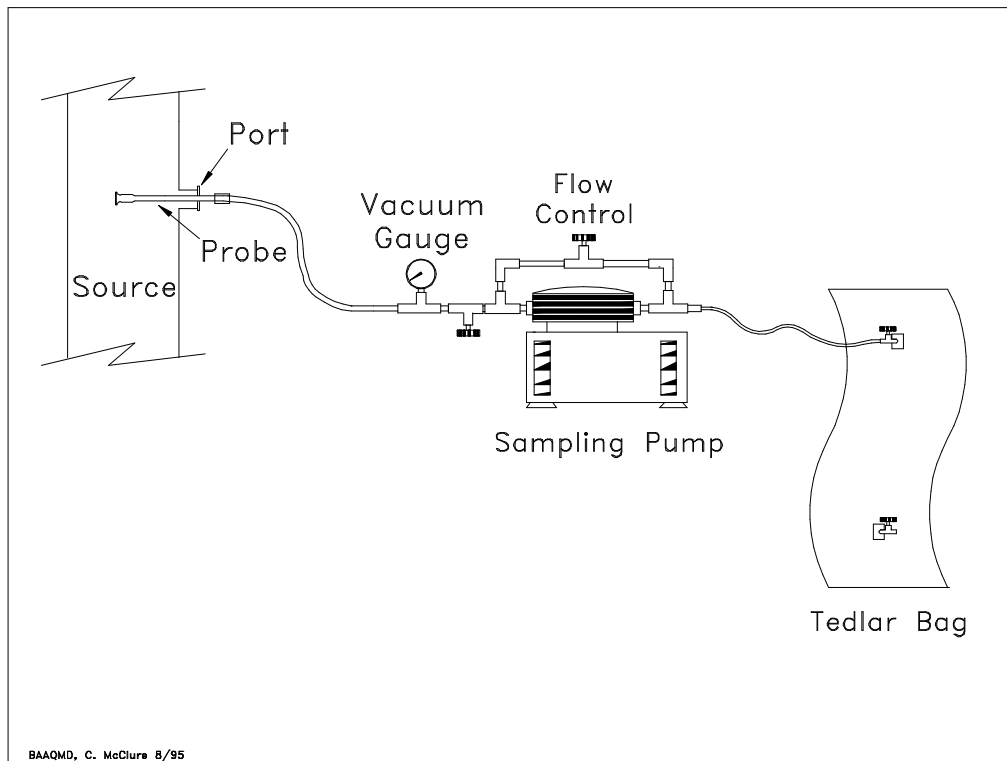
None Known.

#### 5. APPARATUS

- 5.1 Sampling Probe. Use a borosilicate glass tube fitted at the downstream end with an appropriate tubing connector.
- 5.2 Sample Bag. Use a Tedlar bag with a capacity of at least 10 liters and equipped with two stainless steel valves.
- 5.3 Sampling Pump. Use a leak-free Teflon-lined diaphragm pump, or equivalent, capable of at least 0.5 CFM.
- 5.4 Drier/Deodorizer. Use three glass cartridges fitted with ball joints. The first contains Drierite (calcium chloride) the others contain activated carbon and shall be followed by a Pyrex wool filter.

**Figure 11-2**

#### Mercaptan Sampling Train



#### 6. PRE-TEST PROCEDURES

- 6.1 Before going to the test site, assemble the train as shown in Figure 11-1. Purge the entire train, including the Tedlar bag, until the discharge is clean.

The Tedlar bag is considered clean when the laboratory analysis determines the mercaptans concentration to be undetectable.

6.2 Evacuate the Tedlar bag.

6.3 At the sampling site, assemble the train as shown in Figure 11-2, leaving out the drier-deodorizer.

## **7. SAMPLING**

7.1 For stack sources, insert the probe into the stack.

7.2 For ambient sample, sample where the odor appears to be strongest.

7.3 Start the pump and purge the gas to be sampled through the pump and bag for five minutes.

7.4 Then close the outlet valve on the Tedlar bag and fill the bag over a period of not less than three minutes.

7.5 Three bags filled as in 7.3 and 7.4 shall constitute a test.

## **8. POST-TEST PROCEDURES**

8.1 The bags must be analyzed for mercaptans within four hours of collection. Refer to Analytical Procedure Lab-3.

## **9. REPORTING**

9.1 The mercaptan concentration of each bag is reported as shown in Form 11-1.

**Form 11-1**

<b>Distribution:</b>  Firm Permit Services Enforcement Services Technical Services Planning Requester DAPCO	<b>BAY AREA                  AIR QUALITY MANAGEMENT DISTRICT</b>  <i>939 Ellis Street                  San Francisco, California 94109                  (415) 771-6000</i>  <b>Summary of                  Source Test Results</b>	Report No.: _____ Test Date: _____ <b>Test Times:</b> Run A: _____ Run B: _____ Run C: _____
<b>Source Information</b>		<b>BAAQMD Representatives</b>
Firm Name and Address	Firm Representative and Title  Phone No. (      )	Source Test Engineers
Permit Conditions:	Source:  Plant No.                      Permit No. Operates	Permit Services Division/Enforcement Division  Test Requested By:
Operating Parameters:		
<b>Applicable Regulations:</b>		<b>VN Recommended:</b>

**Source Test Results and Comments:**

<u>METHOD</u> <u>TEST</u>	<u>RUN A</u>	<u>RUN B</u>	<u>RUN C</u>	<u>AVERAGE</u>	<u>LIMIT</u>
ST-11      Mercaptans, as CH <sub>3</sub> SH, ppm					

Air Quality Engineer II	Date	Supervising Air Quality Engineer  Date	Approved by Air Quality Engineering Manager
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