

Source Test Method **ST-12**

COLLECTION OF ODOROUS SAMPLES

(Adopted January 20, 1982)

REF: Regulation 7-401

1. APPLICABILITY

1.1 This method is used for the collection of odorous samples to be evaluated according to Regulation 7-401.

2. PRINCIPLE

2.1 Sample gas is drawn into a clean Tedlar bag at stack temperature. When condensation is expected the sample is diluted with clean dry air at stack temperature. If condensation is not expected the gas sample is drawn directly into a Tedlar bag.

3. RANGE AND SENSITIVITY

Not Applicable

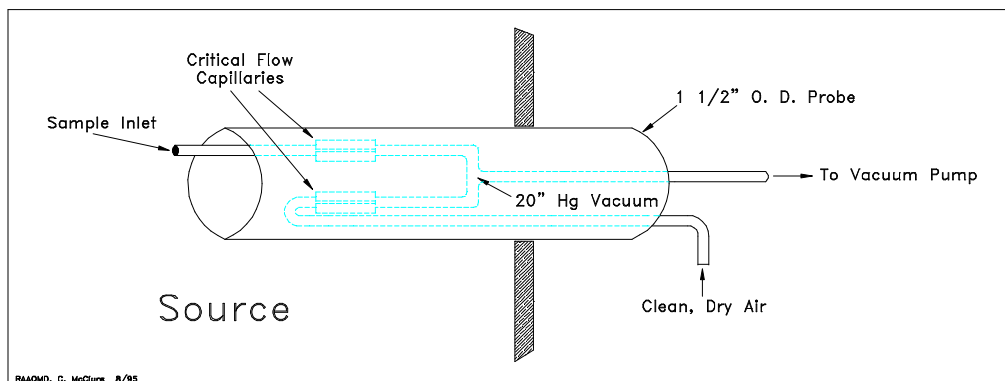
4. INTERFERENCES

4.1 Particulate material will plug the critical orifice in the dilution probe.

4.2 Sample dilution must be sufficient to prevent condensation in the bag or probe.

Figure 12-1

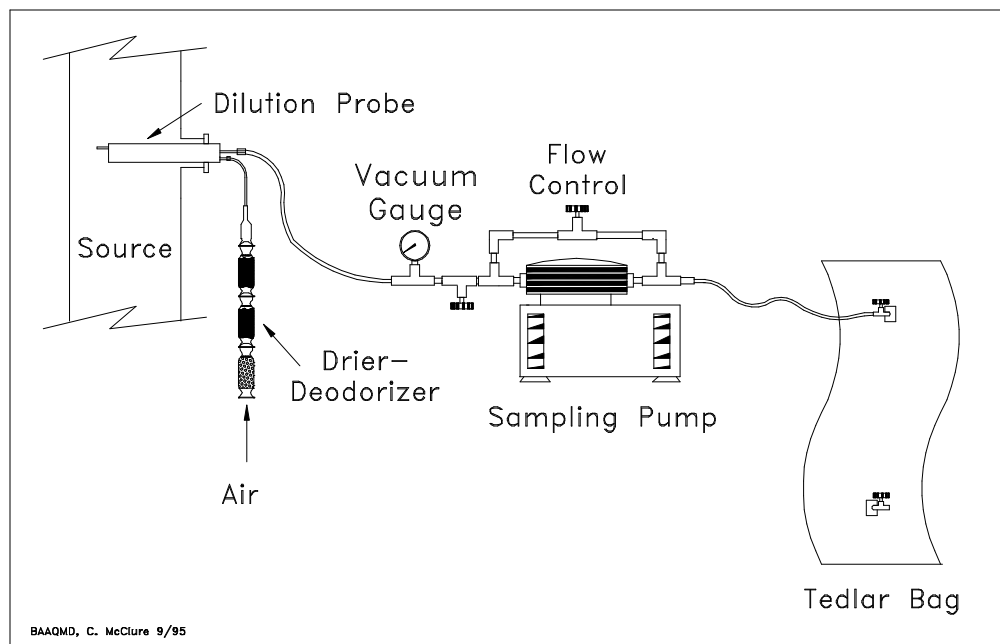
Dilution Probe



5. APPARATUS

5.1 Dilution Probe. The dilution probe is constructed as shown in Figure 12-1

- 5.1.1 All surfaces which contact the sample shall be Teflon, borosilicate glass or type 316 stainless steel.
- 5.1.2 The critical orifices shall be sized to provide a dilution sufficient to prevent condensation in the sample gas. The dilution shall be at least 10:1.
- 5.2 Pump. Use a Teflon-lined diaphragm pump or equivalent capable of at least 20 inches Hg vacuum. The pump shall be fitted with an inlet vacuum gauge and an inlet flow control valve.
- 5.3 Sample Bag. Use a Tedlar bag with two stainless steel valves and a 10 liter capacity.
- 5.4 Drier/Deodorizer. Use three glass cartridges fitted with ball joints. The first contains Drierite; the others contain activated carbon and shall be followed by a Pyrex wool filter.
- 5.5 Sampling Lines. All sample contacting tubing shall be Teflon.
- 5.6 Rotameter. Use a calibrated rotameter capable of measuring the total (diluted) and undiluted sample.

Figure 12-2**Odorous Sample Collection Train****6. PRE-TEST PROCEDURES**

- 6.1 Purge the sample pump and Tedlar bag with clean, dry air for a minimum of 12 hours prior to sample collection.
- 6.2 Use the pump to be used for the test and fill the Tedlar sample bag with clean dry air and close both valves.

- 6.2.1 Evaluate the bag according to Section 7-400 of Regulation 7 within three hours prior to testing.
- 6.2.2 Two or more positive responses will disqualify the bag from being used.
- 6.3 Assemble the train as shown in Figure 12-2.
- 6.4 Start the pump, block the sample and air inlets and check that the flow out of the pump falls to zero.
- 6.5 Start the pump and purge the stack gas through the pump for at least three minutes.
- 6.6 Dilution measurement.
 - 6.6.1 This step may be performed simultaneously with 6.5 or it may be done "out-of-stack".
 - 6.6.2 Start the pump and adjust the inlet vacuum to at least 20 inches Hg and measure the total (diluted) sample flow.
 - 6.6.3 Block the air line and adjust the pump vacuum to 20 inches Hg, and measure the undiluted sample flow.
 - 6.6.4 Calculate the dilution ratio as:

$$R = \frac{Q_d - Q_u}{Q_u}$$

where:

- R = Dilution ratio, air to sample
- Q_d = Flow rate of diluted sample
- Q_u = Flow rate of undiluted sample

7. SAMPLING

- 7.1 Start the pump and adjust inlet vacuum to at least 20 in. Hg.
- 7.2 Attach the Tedlar bag to the pump outlet and purge for three minutes or longer.
- 7.3 Close the bag outlet and fill the bag.

8. POST-SAMPLING PROCEDURES

- 8.1 The dilution ratio shall be checked as in 6.6.
- 8.2 The bag shall be returned and evaluated within three hours.

9. REPORTING

- 9.1 The data and information shown in Form 12-1 shall be reported.

Form 12-1

Distribution: Firm Permit Services Enforcement Services Technical Services Planning Requester DAPCO	BAY AREA AIR QUALITY MANAGEMENT DISTRICT <i>939 Ellis Street San Francisco, California 94109 (415) 771-6000</i> Summary of Source Test Results	Report No.: _____ Test Date: _____ Test Times: Run A: _____
Source Information		BAAQMD Representatives
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:		
Applicable Regulations:		VN Recommended:

Source Test Results and Comments:

Source Test Method ST-12

Location of Sample Point

Elevation of Sample Point

Dilution Rate

This sample was deemed (ODOROUS or NON-ODOROUS) according to Section 7-404 of Regulation 7.

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