

EPA's APTI
Course #450/468

***Monitoring Compliance Testing
and
Source Test Observations***

Problem Set 4

1. What USEPA Federal Reference Method determines volatile organic compounds (VOC), measured as total gaseous nonmethane organics (TGNMO) and reported as carbon?
- ☒ a. FRM 25
 - b. FRM 25A
 - c. FRM 18
 - d. SW-846 0030
 - e. All the above

USEPA Method 25

1.2 Applicability.

1.2.1 This method is applicable for the determination of volatile organic compounds (VOC) (measured as total gaseous nonmethane organics (TGNMO) and reported as carbon) in stationary source emissions. This method is not applicable for the determination of organic particulate matter.

2. When using FRM 25, when carbon dioxide (CO₂) and water vapor are present stack gas stream, they can produce a positive bias in the sample. The bias can be considered insignificant when?
- a. The percent moisture is less than 10%
 - b. The CO₂ is less than 10%
 - ☒ c. The gas stream has 10% CO₂ and 5% water vapor
 - d. The gas stream has 20% CO₂ and 10% water vapor
 - e. None of the above

USEPA Method 25

4.0 Interferences 4.1 Carbon Dioxide and Water Vapor. When carbon dioxide (CO₂) and water vapor are present together in the stack, they can produce a positive bias in the sample. The magnitude of the bias depends on the concentrations of CO₂ and water vapor. As a guideline, multiply the CO₂ concentration, expressed as volume percent, times the water vapor concentration. If this product does not exceed 100, the bias can be considered insignificant. For example, the bias is not significant for a source having 10 percent CO₂ and 10 percent water vapor, but it might be significant for a source having 10 percent CO₂ and 20 percent water vapor

3. Of the following FRM: 25, 25A, or 18, which does not respond equally to all VOC?
- a. FRM 25
 - ☒ b. FRM 25A
 - c. FRM 18
 - d. All the above

USEPA Method 25A

7.0 Reagents and Standards 7.1 Calibration Gases. The calibration gases for the gas analyzer shall be propane in air or propane in nitrogen. Alternatively, organic compounds other than propane can be used; the **appropriate corrections for response factor must be made**. Calibration gases shall be prepared in accordance with the procedure listed in Citation 2 of Section 16. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available (i.e., organics between 1 and 10 percent by volume), alternative methods for preparing calibration gas mixtures, such as dilution systems (Test Method 205, 40 CFR Part 51, Appendix M), may be used with prior approval of the Administrator.

4. Which is not a valid collection media for FRM 18?

- a. Flask
- b. Flexible Bag
- c. Direct Interface
- ☒ d. Summa Canister
- e. Sorbent Tube

Frequently Asked Questions (FAQs) for Method 18

https://www.epa.gov/sites/production/files/2016-08/documents/method18_faq.pdf

6. Are Summa canisters allowed with Method 18? NO. **Canisters are not an allowed sampling option under Method 18.** Summa canisters have been shown to be reactive to polar compounds, which would result in sample loss. The only exception to this rule is during the presurvey, where canisters are permitted [a presurvey (Section 16.1) is conducted if the source does not know what pollutants are being emitted; a presurvey is qualitative in nature and after the source determines what pollutants are being emitted, they must conduct the full Method 18 with the sampling and analytical techniques allowed by the method].