

3.3.2 Demonstrating Compliance with Performance Standards (264.1034 and 265.1034)

Determinations of process vent emissions and reductions of total organic compound concentrations achieved by control devices may be based on engineering calculations or performance tests. If performance tests are used to determine total organic compound concentrations, vent emissions, or emission reductions, the performance tests must conform with the requirements outlined in 40 CFR 264.1034 and 265.1034.

EPA Method 21 and other EPA methods are available on the World Wide Web @ <http://www.epa.gov/ttn/emc/promgate.html>.

Testing of a closed-vent system to demonstrate no detectable emissions shall comply with the following requirements:
Monitoring shall comply with Method 21; the detection instrument shall meet the performance criteria of Method 21; the instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21; the calibration gases shall be zero air (less than 10 ppm of hydrocarbon in air

and a mixture of methane or n-hexane) and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane. The instrument probe must be transversed around all potential leak interfaces as close to the interface as possible as described in Method 21; the arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

“Information required for the performance tests include total organic compound concentrations and mass flow rates entering and exiting control devices.”

Performance tests may be used to determine whether a facility is meeting the requirement of maintaining total organic air emissions from affected process vents below 1.4 kg/h and 2.8 Mg/yr and, in the case of enclosed combustion devices, achieving a total organic compound concentration limit of 20 ppm. Information required for the performance tests include total organic compound concentrations and mass flow rates entering and exiting control devices. Method 2 in 40 CFR Part 60, Appendix A shall be used for velocity and volumetric flow rate. Method 18 in 40 CFR Part 60, Appendix A shall be used for determinations of organic concentrations. It is the owner or operators responsibility to assure that appropriate sampling ports, safe sampling platforms, safe access to sampling platforms and utilities necessary for the implementation of these methods are available during the performance tests.

Each performance test must consist of three separate runs. Each run must be conducted for at least 1 hour under the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. If the owner or operator takes any action that would result in an increase of total organic emissions from affected process vents at the facility, then a new determination “e.g., performance test” would be required.

For the purpose of determining total organic compound concentrations and mass flow rates, the average of results of all runs must apply. If, due to reasons beyond the owner’s or operator’s control, one of the three runs does not yield acceptable results, the Regional Administrator may approve using the average of only two runs. The average must be computed on a time-weighted basis. Total organic mass flow rates shall be determined by the following equation:

$$E_h = Q_{sd} \left\{ \sum_{i=1}^n C_i MW_i \right\} [0.0416][10^{-6}]$$

(Equation 3-4)

where: E_h = Total organic mass flow rate in kg/h
 Q_{sd} = Volumetric flow rate of gases entering or exiting control device, as determined by Method 2 in dscm/h
 n = Number of organic compounds in the vent gas
 C_i = Organic concentration in ppm, dry basis, of compound i in the vent gas, as determined by Method 18
 MW_i = Molecular weight of organic compound i in the vent gas in kg/kg-mol
 0.0416 = Conversion factor for molar volume in kg-mol/m³ (@ 293 K and 760 mm Hg);
 10^{-6} = Conversion from ppm in ppm⁻¹

The annual total organic emission rate must be determined by the following equation:

$$E_A = (E_h)(H) \quad \text{(Equation 3-5)}$$

where: E_A = Total organic mass emission rate in kg/y
 E_h = Total organic mass flow rate for the process vent in kg/h
 H = Total annual hours of operations for the affected unit in h.

Total organic emissions from all affected process vents at the facility must be determined by summing the hourly total organic mass emission rates and by summing annual total organic mass emission rates for all affected process vents at the facility.

“The owner or operator must record such process information as may be necessary to determine the conditions of the performance tests.”

The owner or operator must record such process information as may be necessary to determine the conditions of the performance tests. This information may include operating temperature, flow rate, or pressure. Operations during periods of startup, shutdown, and malfunction can not constitute representative conditions for the purpose of a performance test.

When an owner or operator chooses to use test data to determine the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan is required. This test plan must include a description of how the planned test is going to be conducted when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. This must include the estimated or design flow rate and organic

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content of each vent stream and a definition of the acceptable operating ranges of key process and control device parameters during the test program.