

oxidizer and the high volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of

the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate

using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd} C_c (12)(41.6)(10^{-6}) \quad (\text{Eq. 1})$$

Where:

M_f = Total gaseous organic emissions mass flow rate, grams per hour (h).

C_c = Concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis.

Q_{sd} = Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

41.6 = Conversion factor for molar volume, gram-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency, using Equation 2 of this section:

$$\text{DRE} = 100 \times \frac{M_{fi} - M_{fo}}{M_{fi}} \quad (\text{Eq. 2})$$

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.

M_{fi} = Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, grams/h.

M_{fo} = total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, grams/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§ 63.4767 How do I establish the emission capture system and add-on control device operating limits during the performance test?

During the performance test required by § 63.4760 and described in §§ 63.4764, 63.4765, and 63.4766, you must establish the operating limits required by § 63.4692 according to this section, unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.4692.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature difference across the catalyst bed maintained during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer. (**Note:**

For regenerative catalytic oxidizers, the inlet to the catalyst is defined as the general zone between the inlets to the catalyst beds located in the multiple regeneration towers; select either a monitoring location or multiple monitoring locations. If multiple monitoring locations are selected, either establish separate operating limits for each location or calculate an average of the multiple measurements and set a single operating limit.)

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the recommended procedures from the manufacturer, the catalyst supplier, or the catalyst test provider.

(ii) Monthly inspection of the oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendation and conduct a new performance test to determine destruction efficiency according to § 63.4766.

(c) *Carbon adsorbers.* If your add-on control device is a carbon adsorber, establish the operating limits according to paragraphs (c)(1) and (2) of this section.

(1) You must monitor and record the total regeneration desorbing gas (*e.g.*, steam or nitrogen) mass flow for each regeneration cycle, and the carbon bed temperature after each carbon bed regeneration and cooling cycle for the regeneration cycle either immediately preceding or immediately following the performance test.

(2) The operating limits for your carbon adsorber are the minimum total desorbing gas mass flow recorded