40 C.F.R. § 60.614

Test methods and procedures.

(a) For the purpose of demonstrating compliance with § 60.612, all affected facilities shall be run at full operating conditions and flow rates during any performance test.

(b) The following methods in appendix A to this part, except as provided under § 60.8(b) shall be used as reference methods to determine compliance with the emission limit or percent reduction efficiency specified under § 60.612(a).

(1) Method 1 or 1A, as appropriate, for selection of the sampling sites. The control device inlet sampling site for determination of vent stream molar composition or TOC (less methane and ethane) reduction efficiency shall be prior to the inlet of the control device and after the recovery system.

(2) Method 2, 2A, 2C, or 2D, as appropriate, for determination of the volumetric flow rates.

(3) The emission rate correction factor, integrated sampling and analysis procedure of Method 3 shall be used to determine the oxygen concentration ($\%O_{2d}$) for the purposes of determining compliance with the 20 ppmv limit. The sampling site shall be the same as that of the TOC samples and the samples shall be taken during the same time that the TOC samples are taken. The TOC concentration corrected to 3 percent O_2 (C_c) shall be computed using the following equation:

$$C_c = C_{roc} \frac{17.9}{20.9 - \%O_{2d}}$$

where:

C_c = Concentration of TOC corrected to 3 percent O_2, dry basis, ppm by volume. C_{TOC} = Concentration of TOC (minus methane and ethane), dry basis, ppm by volume. $\%O_{2d}$ = Concentration of O_2, dry basis, percent by volume.

(4) Method 18 to determine concentration of TOC in the control device outlet and the concentration of TOC in the inlet when the reduction efficiency of the control device is to be determined.

(i) The sampling time for each run shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used then the samples shall be taken at 15-minute intervals.

(ii) The emission reduction (R) of TOC (minus methane and ethane) shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R = Emission reduction, percent by weight. E_i = Mass rate of TOC entering the control device, kg/hr (lb/hr). E_o = Mass rate of TOC discharged to the atmosphere, kg/hr (lb/hr).

(iii) The mass rates of TOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

$$E_o = K_2 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_o$$

Where:

C_{ij}, C_{oj} = Concentration of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively, dry basis ppm by volume. M_{ij}, M_{oj} = Molecular weight of sample component "j" of the gas stream at the inlet and outlet of the control device, respectively, g/g-mole (lb/lb-mole). Q_i, Q_o = Flow rate of gas stream at the inlet and outlet of the control device, respectively, dscm/min (dscf/min). K_2 = 2.494 × 10-6 (1/ppm)(g-mole/scm)(kg/g)(min/hr) (metric units), where standard temperature for (g-mole/scm) is 20 °C. = 1.557 × 10-7 (1/ppm)(lb-mole/scf)(min/hr) (English units), where standard temperature for (lb-mole/scf) is 68 °F.

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