**Section 229.APPENDIX C Reference Test Methods and Procedures for Performance Tests**

The following test methods and procedures shall be used as specified in Section 229.140(e) of this Part, when conducting any performance test for the purpose of demonstrating compliance with the emissions limits established under this Part.

a) All performance tests shall consist of a minimum of 3 test runs conducted under representative operating conditions. The minimum sample time of 1 hour per test run shall be used unless otherwise indicated. In order to demonstrate compliance with the emissions limits set forth in Subpart E of this Part, the arithmetic average of all 3 performance test runs shall be used.

b) Method 1, at 40 CFR 60, incorporated by reference at Section 229.104(d) of this Part, shall be used to select the sampling location and number of traverse points.

c) Method 2, at 40 CFR 60, shall be used to determine average gas density, as well as to measure gas velocity.

d) Method 3, 3A, or 3B, at 40 CFR 60, shall be used for gas composition analysis, including measurement of oxygen concentration. Method 3, 3A or 3B, at 40 CFR 60, shall be used simultaneously with each of the other reference methods. As an alternative to Method 3B, ASME PTC-19-10-1981-Part 10 may be used.

e) The pollutant concentrations shall be adjusted to 7 percent oxygen using the following equation:

Cadj = Cmeas (20.9-7)/(20.9-%O2)

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| --- |
| Where: |

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| --- | --- | --- |
| Cadj | = | pollutant concentration adjusted to 7 percent oxygen; |
| Cmeas | = | pollutant concentration measured on a dry basis |
| (20.9-7) | = | 20.9 percent oxygen - 7 percent oxygen (defined oxygen corrective basis); |
| 20.9 | = | oxygen concentration in air, percent; and |
| %O2 | = | oxygen concentration measured on a dry basis, percent. |

f) Method 5, 26A, or 29, at 40 CFR 60, shall be used to measure PM emissions. As an alternative, a PM CEMS may be used in determining compliance with PM emissions using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours.

g) Method 7 or 7E, at 40 CFR 60, shall be used to measure NOx emissions.

h) Method 6 or 6C, at 40 CFR 60, shall be used to measure SO2 emissions*.*

i) Method 9, at 40 CFR 60, shall be used to measure stack opacity. As an alternative, the use of a bag leak detection system or a PM CEMS to demonstrate compliance with the PM standards is considered demonstrative of compliance with the opacity requirements.

j) Method 10 or 10B, at 40 CFR 60, shall be used to measure CO emissions. As an alternative, a CO CEMS may be used to measure CO emissions.

k) Method 22, at 40 CFR 60, shall be used to measure fugitive ash emissions.

l) Method 23, at 40 CFR 60, shall be used to measure total dioxin/furan emissions. As an alternative, the facility may elect to sample total dioxins/furans by installing, calibrating, maintaining, and operating a continuous automated sampling system for monitoring dioxin/furan emissions. The minimum sample time for Method 23 sampling shall be 4 hours per test run. If the affected facility has selected the TEQ for dioxin/furans (set out in Appendix A of this Part), as provided under Section 229.125 or 229.126 of this Part, whichever is applicable, the following procedures shall be used to determine compliance:

1) Measure the concentration of each dioxin/furan tetra-through-octa-congener emitted using Method 23;

2) For each dioxin/furan congener measured in accordance with subsection (i)(1) of this Section, multiply the congener concentration by its corresponding TEQ factor specified in Appendix A of this Part; and

3) Sum the products calculated in accordance with subsection (i)(2) of this Section to obtain the total concentration of dioxin/furans emitted in terms of TEQ.

m) Method 26 or 26A, at 40 CFR 60, shall be used to measure HCl emissions. As an alternative, an HCl CEMS may be used to measure HCl emissions. Before January 1, 2014, if the affected facility has selected the percentage reduction standard for HCl as provided under Section 229.125(a) or 229.126(a) of this Part, whichever is applicable, the percentage reduction in HCl emissions (%RHCl) is computed using the following formula:

(%RHCl) = ((Ei-Eo)/Ei) x 100

Where:

|  |  |  |
| --- | --- | --- |
| %RHCl | = | percentage reduction of HCI emissions achieved; |
| Ei | = | HCI emissions concentration measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and |
| Eo | = | metal emissions concentration (Pb, Cd, or Hg) measured at the control device outlet, corrected to 7 percent oxygen (dry basis). |

n) Method 29, at 40 CFR 60, shall be used to measure Pb, Cd, and Hg emissions. As an alternative, ASTM D6784-02 may be used to measure Hg emissions; a multi-metals CEMS or Hg CEMS may be used to measure Pb, Cd, and Hg emissions; or the facility may elect to sample Hg by installing, calibrating, maintaining, and operating a continuous automated sampling system for monitoring Hg emissions. Before January 1, 2014, if the affected facility has selected the percentage reduction standards for metals as provided in Section 229.125(a) or 229.126(a) of this Part, whichever is applicable, the percentage reduction in emissions (%Rmetal) is computed using the following formula:

(%Rmetal) = ((Ei-Eo)/Ei) x 100

Where:

|  |  |  |
| --- | --- | --- |
| %RMETAL | = | percentage reduction of metal emissions (Pb, Cd, or Hg) achieved; |
| Ei | = | metal emissions concentration (Pb, Cd, or Hg) measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and |
| EO | = | metal emissions concentration (Pb, Cd, or Hg) measured at the control device outlet, corrected to 7 percent oxygen (dry basis). |

(Source: Amended at 35 Ill. Reg. 16615, effective September 30, 2011)