27.0 SAMPLING AND TESTING METHODS

27.1 General

It is explicitly implied that in addition to and consistent with specific methods of sampling and analysis described herein, that samples shall be taken in such number, duration, and location as to be statistically significant and representative of the condition which the sample(s) purport to evaluate.

Where specific materials, equipment, or procedures are specified, it may be permissible to use other materials, equipment, or procedures where it has been reliably demonstrated that their use produces results comparable to that which would have been obtained by use of the specified materials, equipment, or procedures. All sampling and testing of specific minor sources, when required

27.2 Source Sampling and Analysis

The methods set forth in this section shall be applicable for determining compliance with emission standards. The Director may specify or approve, in specific cases, the use of a referenced method with minor changes in methodology, or may approve the use of an equivalent method or may approve the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance, or may approve shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Any equivalent or alternative methods must first be approved by the EPA Administrator.

A. The following reference methods as specified (and as amended) in 40 CFR 60, Appendix A:

Method 1 - Sample and velocity traverses for stationary sources

Method 1A - Sample and velocity traverses for stationary sources with small stacks or ducts

Method 2 - Determination of stack gas velocity and volumetric flow rate (type S pitot tube)

Method 2A - Direct measurement of gas volume through pipes and small ducts

Method 2B - Determination of exhaust gas volume flow rate from gasoline vapor incinerators

Method 2C - Determination of stack gas velocity and volumetric flow rate in small stacks or ducts (standard pitot tube)

Method 2D - Measurement of gas volumetric flow rates in small pipes and ducts

Method 3 - Gas analysis for carbon dioxide, oxygen, excess air, and dry molecular weight

Method 3A - Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources (instrumental analyzer procedure)

Method 4 - Determination of moisture content in stack gases

Method 5 - Determination of particulate emissions from stationary sources

Method 5A - Determination of particulate emissions from the asphalt processing and asphalt roofing industry

Method 5B - Determination of nonsulfuric acid particulate matter from stationary sources

Method 5C - Reserved

Method 5D - Determination of particulate emissions from positive pressure fabric filters

Method 5E - Determination of particulate emissions from the wool fiberglass insulation manufacturing industry

Method 5F - Determination of nonsulfate particulate matter from stationary sources

Method 5G - Determination of particulate emissions from wood heaters from a dilution tunnel sampling location

Method 5H - Determination of particulate emissions from wood heaters from a stack location

Method 6 - Determination of sulfur dioxide emissions from stationary sources

Method 6A - Determination of sulfur dioxide, moisture, and carbon dioxide emissions from fossil fuel combustion sources

Method 6B - Determination of sulfur dioxide and carbon dioxide daily average emissions from fossil fuel combustion sources

Method 6C - Determination of sulfur dioxide emissions from stationary sources (instrumental analyzer procedure)

Method 7 - Determination of nitrogen oxide emissions from stationary sources

Method 7A - Determination of nitrogen oxide emissions from stationary sources - ion chromatographic method

Method 7B - Determination of nitrogen oxide emissions from stationary sources (ultraviolet spectrophotometry)

Method 7C - Determination of nitrogen oxide emissions from stationary sources--alkaline-permanganate/colorimetric method

Method 7D - Determination of nitrogen oxide emissions from stationary sources--alkaline-permanganate/ion chromatographic method

Method 7E - Determination of nitrogen oxides emissions from stationary sources (instrumental analyzer procedure)

Method 8 - Determination of sulfuric acid mist and sulfur dioxide emissions from stationary sources

Method 9 - Visual determination of the opacity of emissions from stationary sources

Alternate Method 1 - Determination of the opacity of emissions from stationary sources remotely by lidar

Method 10 - Determination of carbon monoxide emissions from stationary sources

Method 10A - Determination of carbon monoxide emissions in certifying continuous emission monitoring systems at petroleum refineries

Method 10B - Determination of carbon monoxide emissions from stationary sources

Method 11 - Determination of hydrogen sulfide content of fuel gas streams in petroleum refineries

Method 12 - Determination of inorganic lead emissions from stationary sources

Method 13A - Determination of total fluoride emissions from stationary sources--SPADNS zirconium lake method

Method 13B - Determination of total fluoride emissions from stationary sources--specific ion electrode method

Method 14 - Determination of fluoride emissions from potroom roof monitors for primary aluminum plants

Method 15 - Determination of hydrogen sulfide, carbonyl sulfide, and carbon disulfide emissions from stationary sources

Method 15A - Determination of total reduced sulfur emissions from sulfur recovery plants in petroleum refineries

Method 16 - Semicontinuous determination of sulfur emissions from stationary sources

Method 16A - Determination of total reduced sulfur emissions from stationary sources (impinger technique)

Method 16B - Determination of total reduced sulfur emissions from stationary sources

Method 17 - Determination of particulate emissions from stationary sources (in-stack filtration method)

Method 18 - Measurement of gaseous organic compound emissions by gas chromatography

Method 19 - Determination of sulfur dioxide removal efficiency and particulate, sulfur dioxide and nitrogen oxides emission rates

Method 20 - Determination of nitrogen oxides, sulfur dioxide, and diluent emissions from stationary gas turbines

Method 21 - Determination of volatile organic compound leaks

Method 22 - Visual determination of fugitive emissions from material sources and smoke emissions from flares

Method 23 - Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources

Method 24 - Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings

Method 24A - Determination of volatile matter content and density of printing inks and related coatings

Method 25 - Determination of total gaseous nonmethane organic emissions as carbon

Method 25A - Determination of total gaseous organic concentration using a flame ionization analyzer
Method 25B - Determination of total gaseous organic concentration using a non-dispersive infrared analyzer

Method 26 - Determination of Hydrogen Chloride Emissions from Stationary Sources

Method 27 - Determination of vapor tightness of gasoline delivery tank using pressure-vacuum test

Method 28 - Certification and auditing of wood heaters

Method 28A - Measurement of air to fuel ratio and minimum achievable burn rates for wood-fired appliances

B. The following reference methods, as specified (and as amended) in 40 CFR 61, Appendix B:

Method 101 - Determination of particulate and gaseous mercury emissions from chlor-alkali plants--air streams

Method 101A - Determination of particulate and gaseous mercury emissions from sewage sludge incinerators

Method 102 - Determination of particulate and gaseous mercury emissions from chlor-alkali plants--hydrogen streams

Method 103 - Beryllium screening method

Method 104 - Determination of beryllium emissions from stationary sources

Method 105 - Determination of mercury in wastewater treatment plant sewage sludges

Method 106 - Determination of vinyl chloride from stationary sources

Method 107 - Determination of vinyl chloride content of in process wastewater samples, and vinyl chloride content of polyvinyl chloride resin, slurry, wet cake, and latex samples

Method 107A - Determination of vinyl chloride content of solvents, resin-solvent solution, polyvinyl chloride resin, resin slurry, wet resin, and latex samples

Method 108 - Determination of particulate and gaseous arsenic emissions

Method 108A - Determination of arsenic content in ore samples from nonferrous smelters

Method 111 - Determination of Polonium 210 emissions from stationary sources

C. Volatile organic compound emission compliance testing shall conform to EPA approved methods. Tests to determine the VOC content of coatings must conform to EPA Method 24. Additionally, EPA or the Department may verify test data submitted by companies with independent tests, and EPA or the Department conducted tests will take precedence.