

Ohio EPA

Division of Air Pollution Control

Engineering Section

Engineering Guide #41

Question:

What are the acceptable testing methods for measuring particulate emission rates from fuel burning equipment? (This question was previously answered in the now defunct Policy Guideline Series. The policy expressed in that guideline has been updated by the Technical Services Section of the Division of Air Pollution Control and is hereby reissued as an engineering guide).

Answer:

In accordance with OAC rule 3745-17-03 (B)(6), particulate emission from fuel burning equipment (new or existing) shall be measured by USEPA Reference Methods 1-5, and also Subparts D and Da of CFR 40, Part 60, of the New Source Performance Standards (NSPS). Reference Methods 1-5 are described in the August 18, 1977 Federal Register, pages 41755 to 41782. Subpart D of CFR 40, Part 60, of the NSPS, in the October 6, 1978 Federal Register, pages 46298, paragraph 60.46 (b), and Subpart Da of CFR 40, Part 60, of the NSPS, in the June 11, 1979 Federal Register, pages 33617, paragraph 60.48 (a)(4), both specify a maximum temperature of 320°F for the filter system. Only the dry filter particulate catch obtained at 320°F will be used for purposes of determining compliance with the allowable particulate emission rate specified by OAC rule 3745-17-10. Stack test reports submitted for compliance demonstrations must include both the front and back half catches.

If required by specific sampling needs or conditions, Reference Method 17 (CFR 40, Part 60, Appendix A) may be approved for the measurement of particulate emissions from the sources mentioned above. Approval will be based upon review of the justification for the deviation submitted by the source. Approval will be limited to those cases where severe physical restrictions demand the utilization of an in-stack technique, and the stack gas temperature is less than 320°F (160°C).

By increasing the Method 5 probe and filter box temperature to 320°F maximum (from 248 ± 25°F), the Ohio EPA has recognized the need to eliminate condensation of sulfuric acid mist in the particulate portion of the sample train. With a lower sample train temperature of 248 ± 25°F, acid condensed in the probe and on the filter during the sampling of certain stacks and did not condense during the sampling of others. Whether or not condensation occurred was a function of the stack gas temperature and acid dew point. Therefore, a temperature restriction of 248 ± 25°F is arbitrary. By increasing the probe and sample box temperature to a temperature above the maximum stack gas acid dew point, which would be expected in the field, condensed acid is not included as a particulate emission. Exclusion of the acid mist is consistent with the basis for the RACT emission limitations contained in OAC rule 3745-17-10. Since RACT for fuel burning equipment is not intended to control sulfuric acid mist, particulate emissions as defined in OAC rule 3745-17-01 should not include condensed acid mist.

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