



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

March 20, 2017

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

**MEMORANDUM**

**SUBJECT:** Opacity Monitor Manufacturers Certifying Conformance with PS-1

**FROM:** Stef Johnson, Group Leader  
Measurements Technology Group (E143-02)

A handwritten signature in black ink, appearing to read "Stef Johnson", with a long horizontal flourish extending to the right.

**THRU:** Idalia Perez, Lead Region Coordinator

**TO:** Addressees

Revisions have been made to the American Society of Testing and Materials (ASTM) D6216 "Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications." When Performance Specification 1 (PS-1) of 40 CFR part 60, Appendix B was published in the Federal Register (65 FR 48914, August 10, 2000), it incorporated by reference ASTM D6216-98 in its entirety.

The ASTM made revisions to D6216-98 in 2003, 2007, and 2012, and we agree with the revised versions. We are in the process of updating PS-1 to reference ASTM D6216-12. Until this change is finalized in PS-1, continuous opacity monitors may be certified in accordance with either ASTM D6216-98, D6216-03, D6216-07, or D6216-12.

Please contact Lula Melton at 919-541-2910 or at [melton.lula@epa.gov](mailto:melton.lula@epa.gov) if you have any questions.

Attachment

## Attachment 1

### Summary of Changes in D6216-03

1. Numerous editorial revisions have been included to clarify and correct the standard and to eliminate confusion wherever possible.
2. Tests to determine conformance with manufacturer's design specifications performed on an annual or monthly basis including angle of projection, angle of view, insensitivity to supply voltage variations, thermal stability, and insensitivity to ambient light, have been modified to use a consistent three-meter flange-to-flange set up distance (or equivalent).
3. Procedures for conducting the insensitivity to line voltage variation tests and the procedures for the calibration device repeatability test have been simplified through minor changes.
4. Procedures for the spectral response performance check have been significantly improved based on changes to the specifications for the transmission filter used for the tests. The revised procedure will better detect changes in spectral response for all monitor types and uses more readily available materials.
5. The insensitivity to ambient light test has been significantly modified and is now based on use of artificial lighting under laboratory conditions rather than testing out-of-doors with natural lighting. The revised test procedure is a more rigorous test for opacity monitors, is a more robust evaluation procedure, and facilitates independent audits or observations of these tests.

### Summary of Changes in D6216-07

1. Typographical errors were corrected, but the substance remained unchanged.
2. Annex A1 was added to permit extension of this practice to cover opacity monitors intended for use where the applicable opacity limit is less than 10 percent.
3. Annex A2 was added to give guidance on the calibration of standard attenuators.
4. X1 was added and shows the error budget for an opacity monitor whose performance is in accordance with this practice.
5. X2 was added to give recommendations on the ongoing maintenance of opacity monitors covered by this practice.

### Summary of Changes in D6216-12

1. Corrected Annex A1, Table A1.1 requirement of the simulated zero check device to be consistent with the previously approved change to the main standard at 6.9.1.1 and Table 1.
2. Changed NIST Standard Reference Material designation from "2031a" to "2031" in Annex A2.

Attachment 2 - Addressees

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