



Designation: D 5149 – 9502

Standard Test Method for Ozone in the Atmosphere: Continuous Measurement by Ethylene Chemiluminescence¹

This standard is issued under the fixed designation D 5149; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

¹ This test method is under the jurisdiction of ASTM Committee D-22 on Sampling and Analysis of Atmospheres and is the direct responsibility of Subcommittee D22.03 on Ambient Atmospheres and Source Emissions.

Current edition approved ~~Sept. 10, 1995~~; October 10, 1995; 2002. Published ~~November 1995~~; December 2002. Originally published as D 5149 – 90. Last previous edition D 5149 – 905.

1. Scope

1.1 This test method describes the sampling and continuous analysis of the ozone content of the atmosphere at concentrations of 20 to 2000 µg of ozone/m³ (10 ppb (v) to 1 ppm (v)).

1.2 This test method is limited in application by its sensitivity to interferences as described below. This test method is not suitable for personal sampling because of instrument size and sensitivity to vibration and ambient temperature.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Some specific precautionary statements are presented in Section 8.

2. Referenced Documents

2.1 ASTM Standards:

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres²

D 1357 Practice for Planning the Sampling of the Ambient Atmosphere²

~~D 1605 Practice for Sampling Atmospheres for Analysis of Gases and Vapors³~~

~~D 1914 Practice~~ 1914 Practice for Conversion Units and Factors Relating to Sampling and Analysis of Atmospheres²

D 3249 Practice for General Ambient Air Analyzer Procedures²

D 3670 Guide for Determination of Precision and Bias of Methods of Committee D-22²

D 5011 Practices for Calibration of Ozone Monitors Using Transfer Standards²

D 5110 Practice for Calibration of Ozone Monitors and Certification of Ozone Transfer Standards Using Ultraviolet Photometry²

E 380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)

~~E 591 Practice for Safety and Health Requirements Relating to Occupational Exposure to Ozone⁴³~~

2.2 U.S. Environmental Protection Agency Standards:⁵

EPA-600/4-79-056 Transfer Standards for Calibration of Air Monitoring Analyzers for Ozone (NTIS: PB80146871)

EPA-600/4-79-057 Technical Assistance Document for the Calibration of Ozone Monitors (NTIS: PB80149552)

EPA-600/4-80-050 Evaluation of Ozone Calibration Techniques (NTIS: PB81118911)

EPA-600/4-83-003 Performance Test Results and Comparative Data for Designated Reference and Equivalent Methods for Ozone (NTIS: PB83166686)

2.3 Code of Federal Regulations:⁴

40-CFR-Part 53.20

² Annual Book of ASTM Standards, Vol 11.03.

³ ~~Discontinued—See 1991 Annual Book of ASTM Standards, Vol 11.03, 14.02.~~

⁴ Kleindienst, T. E., Hudgens, E. E., Smith, D. F., McElroy, F. F., and Bufalini, J. J., "Comparison of Chemiluminescence and Ultraviolet Ozone Monitor Responses in the Presence of Humidity and Photochemical Pollutants," ~~1990 Annual Book Journal of ASTM Standards Air and Waste Management Assoc., Vol 11.03, 43, 1993, p 213.~~

~~Annual Book of ASTM Standards, Vol 14.02.~~

⁵ Available from the National Technical Information Service, Springfield, VA 22161.