



Designation: D3249 – 95 (Reapproved 2019)

Standard Practice for General Ambient Air Analyzer Procedures¹

This standard is issued under the fixed designation D3249; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This practice is a general guide for ambient air analyzers used in determining air quality.

1.2 The actual method, or analyzer chosen, depends on the ultimate aim of the user: whether it is for regulatory compliance, process monitoring, or to alert the user of adverse trends. If the method or analyzer is to be used for federal or local compliance, it is recommended that the method published or referenced in the regulations be used in conjunction with this and other ASTM methods.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 6.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D1357 Practice for Planning the Sampling of the Ambient Atmosphere

¹ This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.03 on Ambient Atmospheres and Source Emissions.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D3609 Practice for Calibration Techniques Using Permeation Tubes

D3670 Guide for Determination of Precision and Bias of Methods of Committee D22

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice other than those following, refer to Terminology **D1356**.

3.1.1 *analyzer, n*—the instrumental equipment necessary to perform automatic analysis of ambient air through the use of physical and chemical properties and giving either cyclic or continuous output signal.

3.1.1.1 *analyzer system, n*—all sampling, analyzing, and readout instrumentation required to perform ambient air quality analysis automatically.

3.1.1.2 *sample system, n*—equipment necessary to provide the analyzer with a continuous representative sample.

3.1.1.3 *readout instrumentation, n*—output meters, recorder, or data acquisition system for monitoring analytical results.

3.1.2 *full scale, n*—the maximum measuring limit for a given range of an analyzer.

3.1.3 *interference, n*—an undesired output caused by a substance or substances other than the one being measured. The effect of interfering substance(s), on the measurement of interest, shall be expressed as: ($\pm$) percentage change of measurement compared with the molar amount of the interferent. If the interference is nonlinear, an algebraic expression should be developed (or curve plotted) to show this varying effect.

3.1.4 *lag time, n*—the time interval from a step change in the input concentration at the analyzer inlet to the first corresponding change in analyzer signal readout.

3.1.5 *linearity, n*—the maximum deviation between an actual analyzer reading and the reading predicted by a straight line drawn between upper and lower calibration points. This deviation is expressed as a percentage of full scale.