



Designation: D6332 – 12 (Reapproved 2021)

Standard Guide for Testing Systems for Measuring Dynamic Responses of Carbon Monoxide Detectors to Gases and Vapors¹

This standard is issued under the fixed designation D6332; 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. Scope

1.1 This guide describes testing systems used for measuring responses of carbon monoxide (CO) alarms or detectors subjected to gases, vapors, and their mixtures.

1.2 The systems are used to evaluate responses of CO detectors to various CO concentrations, to verify that the detectors alarm at certain specified CO concentrations, and to verify that CO detectors do not alarm at certain other specified CO concentrations.

1.3 The systems are used for evaluating CO detector responses to gases and vapors that may interfere with the ability of detectors to respond to CO.

1.4 Major components of such a testing system include a chamber, clean air supply module, humidification module, gas and vapor delivery module, and verification and control instrumentation.

1.5 For each component, this guide provides a comparison of different approaches and discusses their advantages and disadvantages.

1.6 The guide also presents recommendations for a minimum configuration of a testing system.

1.7 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.8 *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 more specific safety precautionary information, see 6.2.

1.9 *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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

D1193 Specification for Reagent Water

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D1945 Test Method for Analysis of Natural Gas by Gas Chromatography

D3162 Test Method for Carbon Monoxide in the Atmosphere (Continuous Measurement by Nondispersive Infrared Spectrometry)

D3195 Practice for Rotameter Calibration

D3249 Practice for General Ambient Air Analyzer Procedures

D3687 Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method

2.2 Other Standards:

CFR 1910.1450 Occupational Exposure to Hazardous Chemicals in Laboratories³

UL 2034 Single and Multiple Station Carbon Monoxide Alarms⁴

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology D1356.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *air change rate, n*—the volume of clean, humidified air plus contaminants that enters the chamber in 1 h, divided by the internal volume of the chamber, expressed as air changes per hour (h^{-1}).

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.

³ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

⁴ Available from Underwriters Laboratories (UL), UL Headquarters, 333 Pfingsten Road, Northbrook, IL, 60062, <http://www.ul.com>.

¹ This guide is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.05 on Indoor Air.

Current edition approved Sept. 1, 2021. Published September 2021. Originally approved in 1998. Last previous edition approved in 2017 as D6332 – 12 (2017). DOI: 10.1520/D6332-12R21.