



Designation: D8570 – 24

Standard Practice for Vented and Fugitive Gaseous Emissions Destruction by Thermal Oxidizer¹

This standard is issued under the fixed designation D8570; 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 practice covers the destruction of gaseous vented and fugitive emissions by thermal oxidization (Test Method [D4891](#)) (non-catalytic, electrically heated) in the 0 kJ/h to 158 258 kJ/h (150 000 Btu/h) (Practice [D3588](#)) range with a high destruction or removal efficiency (DRE) of 95 % to 99.9 % ([1-4](#)).²

1.2 These gaseous emissions, referred to as waste gas, are listed as toxic release inventory (TRI) (Test Method [D4891](#)); volatile organic compounds (VOC) (Test Method [D4891](#)); hazardous air pollutants (HAP); and benzene, toluene, ethylbenzene, and xylenes (BTEX). Destruction of these gases should comply with applicable governmental guidelines and regulations for combustion air requirement(s) ([1](#)), operation of combustion chamber(s) temperature(s) at no less than 760 °C (1400 °F) ([5](#)), and designed with adequate residence time at said temperature in the combustion chamber(s) to achieve a DRE of 95 % to 99.9 % ([1-4](#)) destruction of waste gases.

1.3 Typical reporting requirements demonstrating compliance are for emissions from the combusted waste gas stream measured at the combustion tube exhaust. The temperature being reported shall have an accuracy of $\leq \pm 0.75$ % ([2](#)) of the temperature being measured.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.5 *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.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization 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:³

- [C1055](#) Guide for Heated System Surface Conditions that Produce Contact Burn Injuries
- [D1356](#) Terminology Relating to Sampling and Analysis of Atmospheres
- [D3588](#) Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels
- [D4150](#) Terminology Relating to Gaseous Fuels
- [D4891](#) Test Method for Heating Value of Gases in Natural Gas and Flare Gases Range by Stoichiometric Combustion
- [D5466](#) Test Method for Determination of Volatile Organic Compounds in Atmospheres (Canister Sampling, Mass Spectrometry Analysis Methodology)
- [D6060](#) Test Method for Sampling of Process Vents with a Portable Gas Chromatograph
- [D6196](#) Practice for Choosing Sorbents, Sampling Parameters and Thermal Desorption Analytical Conditions for Monitoring Volatile Organic Chemicals in Air
- [D7339](#) Test Method for Determination of Volatile Organic Compounds Emitted from Carpet using a Specific Sorbent Tube and Thermal Desorption / Gas Chromatography

2.2 NFPA Standards:

- [NFPA 68](#) Explosion Protection by Deflagration Venting
- [NFPA 75](#) Fire Protection of Information Technology Equipment
- [NFPA 85](#) Boiler and Combustion Systems Hazards Code
- [NFPA 86](#) Chapter 10 Section 86-31 Thermal Oxidizers⁴

¹ This practice is under the jurisdiction of ASTM Committee [D22](#) on Air Quality and is the direct responsibility of Subcommittee [D22.03.01](#) on Source Emissions. Current edition approved Oct. 1, 2024. Published October 2024. DOI: 10.1520/D8570-24.

² The boldface numbers in parentheses refer to a list of references at the end of this standard.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, <http://www.nfpa.org>.