



Standard Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method)¹

This standard is issued under the fixed designation D 3686; 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.

^{ε1} NOTE—SI statement was added and part of Footnote F of Table A1.1 was deleted editorially in October 2001.

1. Scope

1.1 This practice covers a method for the sampling of atmospheres for determining the presence of certain organic vapors by means of adsorption on activated charcoal using a charcoal tube and a small portable sampling pump worn by a worker. A list of some of the organic chemical vapors that can be sampled by this practice is provided in Annex A1. This list is presented as a guide and should not be considered as absolute or complete.

1.2 This practice does not cover any method of sampling that requires special impregnation of activated charcoal or other adsorption media.

1.3 The values stated in SI units are to be regarded as the 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 and health practices and determine the applicability of regulatory limitations prior to use. A specific safety precaution is given in 9.4.*

2. Referenced Documents

2.1 ASTM Standards:

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres²

D 3687 Practice for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method²

2.2 NIOSH Standard:

CDC-99-74-45 Documentation of NIOSH Validation Tests³

HSM-99-71-31 Personnel Sampler Pump for Charcoal Tubes; Final Report³

2.3 OSHA Standard:

CFR 1910 General Industrial OSHA Safety and Health Standard⁴

3. Terminology

3.1 For definitions of terms used in this method, refer to Terminology D 1356.

3.2 Activated charcoal refers to properly conditioned coconut-shell charcoal.

4. Summary of Practice

4.1 Air samples are collected for organic vapor analysis by aspirating air at a known rate through sampling tubes containing activated charcoal, which adsorbs the vapors.

4.2 Instructions are given to enable the laboratory personnel to assemble charcoal tubes suitable for sampling purposes.

4.3 Instructions are given for calibration of the low flow-rate sampling pumps required in this practice.

4.4 Information on the correct use of sampling devices is presented.

4.5 Practice D 3687 describes a practice for the analysis of these samples.

5. Significance and Use

5.1 Promulgations by the Federal Occupational Safety and Health Administration (OSHA) in 29 CFR 1910.1000 designate that certain organic compounds must not be present in workplace atmospheres at concentrations above specific values.

5.2 This practice, when used in conjunction with Practice D 3687, will provide the needed accuracy and precision in the determination of airborne time-weighted average concentrations of many of the organic chemicals given in 29 CFR 1910.1000, CDC-99-74-45 and HSM-99-71-31.

¹ This practice is under the jurisdiction of ASTM Committee D22 on Sampling and Analysis of Atmospheres and is the direct responsibility of Subcommittee D22.04 on Workplace Atmospheres.

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² *Annual Book of ASTM Standards*, Vol 11.03.

³ Available from the U.S. Department of Commerce, National Technical Information Service, Port Royal Road, Springfield, VA 22161.

⁴ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

