Designation: D 6345 – 98 (Reapproved 2003)

Standard Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air[1]

This standard is issued under the fixed designation D 6345; 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 provides assistance in the selection of active integrative sampling methods, in which the volatile organic analytes are collected from air over a period of time by drawing the air into the sampling device, with subsequent recovery for analysis. Where available, specific ASTM test methods and practices are referenced.

1.2 Guidance is provided for the selection of active sampling methods based either on collection of an untreated air sample (whole air samples) or selective sampling using sorbent concentration techniques that selectively concentrate components in air. Advantages and disadvantages of specific collection vehicles are presented.

1.3 This guide does not cover the use of cryogenically cooled field sampling devices used in some automated analysis systems. Detailed instructions for cryogenic recovery of compounds captured as whole air samples or thermally desorbed from sorbents are typically covered in standard methods for sample analysis and are beyond the scope of this guide.

1.4 Both thermal and solvent desorption techniques for sample recovery are discussed.

1.5 Organic compounds are classified on the basis of vapor pressure as very volatile, volatile, semivolatile and nonvolatile. Physical characteristics of many volatile organic compounds (VOCs) are provided to aid in selection of sampling techniques for VOC measurement. Semivolatile and nonvolatile organic compounds are defined in the guide to help guide users avoid misidentifying compounds that are not covered in this guide.

1.6 *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.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres

D 1357 Practice for Planning the Sampling of the Ambient Atmosphere

D 3686 Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method)

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

D 5197 Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)

D 5466 Test Method for Determination of Volatile Organic Chemicals in Atmospheres (Canister Sampling Methodology)

D 5953M Test Method for Determination of Non-Methane Organic Compounds (NMOC) in Ambient Air Using Cryogenic Preconcentration and Direct Flame Ionization Detection Method (Metric)

D 6196 Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide refer to Terminology D 1356.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cryofocus*—the process of concentrating compounds from an air sample for subsequent analysis by collection on a trap cooled with a cryogen to very low temperatures (for example, -186°C).

[1] This guide is under the jurisdiction of ASTM Committee D22 on Sampling and Analysis of Atmospheres and is the direct responsibility of Subcommittee D22.05 on Indoor Air.

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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.

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