



Designation: ~~E1728 – 10~~ E1728 – 16

Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination¹

This standard is issued under the fixed designation E1728; 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 collection of settled lead-containing dust on surfaces using the wipe sampling method. These samples are collected in a manner that will permit subsequent extraction and determination of lead using laboratory analysis techniques such as atomic spectrometry or electroanalysis. For collection of settled dust samples for determination of lead and other metals, use Practice D6966.

1.2 This practice does not address the sampling design criteria (that is, sampling plan which includes the number and location of samples) that are used for clearance, lead hazard evaluation, risk assessment, and other purposes. To provide for valid conclusions, sufficient numbers of samples should be obtained as directed by a sampling plan.

1.3 This practice contains notes that are explanatory and are not part of the mandatory requirements of this practice.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D4840 Guide for Sample Chain-of-Custody Procedures](#)

[D6966 Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals](#)

[E1605 Terminology Relating to Lead in Buildings](#)

[E1613 Test Method for Determination of Lead by Inductively Coupled Plasma Atomic Emission Spectrometry \(ICP-AES\), Flame Atomic Absorption Spectrometry \(FAAS\), or Graphite Furnace Atomic Absorption Spectrometry \(GFAAS\) Techniques](#)

[E1644 Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead](#)

[E1792 Specification for Wipe Sampling Materials for Lead in Surface Dust](#)

[E1979 Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead](#)

[E2051 Practice for the Determination of Lead in Paint, Settled Dust, Soil and Air Particulate by Field-Portable Electroanalysis](#)

(Withdrawn 2010)³

2.2 *Federal Regulations:*⁴

[40 CFR 745.63 U.S. Environmental Protection Agency Federal Register, Vol 66, No. 4, 5 Jan. 2001, p. 1206](#)

3. Terminology

3.1 For definitions of terms not listed here, see Terminology [E1605](#).

3.2 *Definitions:*

¹ This practice is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Lead Hazards Associated with Buildings.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from United States Environmental Protection Agency (EPA), Ariel Rios-William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.org>.

3.2.1 *batch, n*—a group of field or quality control (QC) samples that are collected or processed together at the same time using the same reagents and equipment.

3.2.2 *sampling location, n*—a specific area within a sampling site that is subjected to sample collection.

3.2.2.1 *Discussion*—

Multiple sampling locations are commonly designated for a single sampling site (see 3.2.3).

3.2.3 *sampling site, n*—a local geographic area that contains the sampling locations (see 3.2.2).

3.2.3.1 *Discussion*—

A sampling site is generally limited to an area that is easily covered by walking.

3.2.4 *wipe, n*—a disposable towellette that is moistened with a wetting agent.

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3.2.4.1 *Discussion*—

These towellettes are used to collect a sample of settled dust on a surface for subsequent lead analysis.

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *field blank, n*—a wipe (see 3.2.4) that is exposed to the same handling as field samples except that no sample is collected (no surface is actually wiped).

3.3.1.1 *Discussion*—

Analysis results from field blanks provide information on the analyte background level in the wipe combined with the potential contamination experienced by samples collected within the batch (see 3.2.1) resulting from handling.

4. Summary of Practice

4.1 Wipe samples of settled dust are collected on surfaces from areas of known dimensions with wipes meeting Specification **E1792**, using a specified pattern of wiping.

4.2 The collected wipes are then ready for subsequent sample preparation and analysis by procedures such as Practice **E1644**, Practice **E1979**, Practice **E2051**, and Test Method **E1613**.

5. Significance and Use

5.1 This practice is intended for the collection of settled dust samples in and around buildings and related structures for the subsequent determination of lead content in a manner consistent with that described in the HUD Guidelines⁵ and 40 CFR 745.63. The practice is meant for use in the collection of settled dust samples that are of interest in clearance, hazard assessment, risk assessment, and other purposes.

5.2 Use of different pressures applied to the sampled surface along with the use of different wiping patterns contribute to collection variability. Thus, the sampling result can vary between operators performing collection from identical surfaces as a result of collection variables. Collection for any group of sampling locations at a given sampling site is best when limited to a single operator.

5.3 This practice is recommended for the collection of settled dust samples from hard, relatively smooth, nonporous surfaces. This practice is less effective for collecting settled dust samples from surfaces with substantial texture such as rough concrete, brickwork, textured ceilings, and soft fibrous surfaces such as upholstery and carpeting.

6. Apparatus and Materials

6.1 *Sampling Templates*—One or more of the following: A 30 by 30 cm (approximately 1 ft²) reusable aluminum or plastic, or disposable cardboard or plastic template, (full-square, rectangular, square “U-shaped,” rectangular “U-shaped,” and “L-shaped”) or templates of alternative areas having accurately known dimensions (see **Notes 1 and 2**).

NOTE 1—For most surfaces, it is recommended to collect settled dust from a minimum of a 100 cm² area to provide sufficient material for laboratory

⁵ *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development (HUD), Washington, DC, 1995.