



Standard Specification for Wipe Sampling Materials for Lead in Surface Dust¹

This standard is issued under the fixed designation E 1792; 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 specification covers requirements for wipe materials that are used to collect settled dusts on surfaces for the subsequent determination of lead.

1.2 *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:

E 105 Practice for Probability Sampling of Materials²

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method^{2,3}

E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures⁴

E 1613 Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques⁴

E 1644 Practice for Hot Plate Digestion of Dust Wipe Samples for Determination of Lead by Atomic Spectrometry⁴

E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques⁴

3. Terminology

3.1 For definitions of terms not listed here, see Terminology E1605.

3.2 Definitions:

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

3.2.1.1 *Discussion*—The towellette is used to collect a sample of settled dust on a surface for subsequent lead analysis.

4. Manufacture

4.1 The wipes shall be made from materials using methods that ensure compliance with the requirements of Sections 5 and 7, and shall be clean and free of imperfections that would affect their performance.

5. General Requirements

5.1 Test data must be provided to assure compliance with all the following requirements. Test procedures for each requirement are found in Section 7.

5.1.1 *Background Lead*—The mean background lead concentration per wipe shall be less than 1.0 μg .

5.1.2 *Ruggedness*—Wipes shall be sufficiently rugged so as to be used on a 2000 cm^2 area of a vinyl tile surface without tearing.

5.1.3 *Moisture Content*—Each wipe, when examined, must be fully wetted upon removal from the package. Wipes shall have a moisture content such that the coefficient of variation for a random sampling of the lot of wipes be no greater than 25 %.

5.1.4 *Dimensions*—The mean dimensions (length and width) of wipes shall be between 15 by 15 cm and 25 by 25 cm.

5.1.5 *Thickness*—The dry wipes shall have a mean thickness of at least 0.005 cm but no greater than 0.05 cm.

5.1.6 *Mass*—The coefficient of variation in mass of dry wipes in a lot shall not exceed 10 %.

5.1.7 *Lead Recoveries*—The mean lead recoveries from wipes spiked with Certified Reference Materials (CRMs) having 20 mg, 100 mg, and 500 mg ($\pm 10\%$) of lead per sample shall be 100 % $\pm 20\%$, 95 % confidence level, of the lead recovery from the CRM alone, that is, *sans* wipe material, as per 7.2(1).

NOTE 1—It is not imperative that the wipe be completely dissolved when extracted in accordance with Practice E 1644 or an equivalent procedure to meet the recovery criterion. However, the solution that is to be analyzed (after extraction) should be free of suspended particulates and gelatinous material. Reference (2) describes a specific procedure and criteria for the evaluation of the extractability of wipe materials.

5.1.8 *Collection Efficiency*—Collection efficiency of an individual wipe, using an initial wipe on a given test surface,

¹ This specification is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Lead Paint Abatement.

Current edition approved Dec. 10, 2001. Published March 2002. Originally published as E 1792 – 96. Last previous edition E 1792 – 96a.

² *Annual Book of ASTM Standards*, Vol 14.02.

³ *ASTM Standards on Precision and Bias for Various Applications*, 3rd Ed., ASTM, Philadelphia, PA, 1988.

⁴ *Annual Book of ASTM Standards*, Vol 04.11.