



Standard Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead¹

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1. Scope

1.1 This practice covers the acid digestion of settled dust samples (collected using wipe sampling practices) and associated quality control (QC) samples for the determination of lead.

1.2 This practice is based on U.S. EPA SW846 Method 3050, NIOSH 7082 and NIOSH 7105.

1.3 This practice contains notes which are explanatory and not part of mandatory requirements of the standard.

2. Referenced Documents

2.1 ASTM Standards:

D 1129 Terminology Relating to Water²

D 1193 Specification for Reagent Water²

E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures³

E 1724 Guide for Testing and Certification of Reference Materials⁴

E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust³

2.2 Other Documents:

EPA SW 846, Method 3050, "Acid Digestion of Sediments, Sludges, and Soils." This method is found in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, U.S. EPA SW 846, 3rd Edition, Revision 1, 1987⁵

NIOSH *Manual of Analytical Methods*, NIOSH 7082 and 7105, Eller, P.M., Ed., 3rd ed., 1984⁵

3. Terminology

3.1 *Definitions*—For definitions of terms relating to this practice that do not appear in this section, refer to Terminology D 1129 and E 1605.

3.1.1 *batch*—a group of field or quality control (QC) samples that are processed together using the same reagents and equipment.

3.1.2 *certified reference material (CRM)*—reference material accompanied by a certificate, of which one or more of its property values are certified by a procedure that establishes its traceability to an accurate realization of the unit in which the property values are expressed. **E 1724**

3.1.3 *digestate*—an acidified aqueous solution that results from digestion of the sample.

3.1.4 *digestion*—the sample preparation process that solubilizes (extracts) targeted analytes present in the sample and results in an acidified aqueous solution called the digestate; equivalent to extraction.

3.1.5 *dust wipe sample*—a settled dust sample collected on a moistened disposable towellette (see *wipe*).

3.1.6 *extraction*—the dissolution of target analytes from a solid matrix into a liquid form. During sample digestion, target analytes are extracted (solubilized) into an acid solution.

3.1.7 *method blank*—a digestate that reflects the maximum treatment given any one sample within a sample batch except that only the sampling medium (such as a blank wipe) is initially placed into the digestion vessel. (The same reagents and processing conditions that are applied to field samples within a batch are also applied to the method blanks.) Analysis results from method blanks provide information on the level of potential contamination resulting from the laboratory and sampling medium sources that are experienced by samples processed within the batch.

3.1.8 *non-spiked sample*—a blank wipe sample that was targeted for addition of analyte but was not fortified with all the target analytes before sample preparation.

3.1.8.1 *Discussion*—For wipe samples, a non-spiked sample is equivalent to a method blank. Analysis results for this sample are used to correct for background levels in the blank wipes used for spiked and spiked duplicate samples.

3.1.9 *reagent blank*—a digestate that reflects the maximum treatment given any one sample within a sample batch except that it has no sample initially placed into the digestion vessel. (The same reagents and processing conditions that are applied to field samples within a batch are also applied to the reagent blank.)

¹ This practice is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Lead Paint Abatement.

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² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 04.11.

⁴ *Annual Book of ASTM Standards*, Vol 03.06.

⁵ Available from National Technical Information Service, 5285 Port Royal Rd., Springfield, VA 22161.